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УО «ВИТЕБСКИЙ ГОСУДАРСТВЕННЫЙ ОРДЕНА ДРУЖБЫ
НАРОДОВ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»

Кафедра акушерства и гинекологии



OBSTETRICS AND GYNECOLOGY: PRACTICAL SKILLS

АКУШЕРСТВО И ГИНЕКОЛОГИЯ: ПРАКТИЧЕСКИЕ НАВЫКИ

Методические рекомендации

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EXTERNAL OBSTETRIC EXAMINATION (Leopold maneuvers)

Purpose: To determine the lie and presentation of the fetus in the uterus.

Equipment: couch.

The position of the patient: the pregnant woman lies on the couch on her back with the thighs slightly flexed. Abdomen is fully exposed.

Preliminaries: The examiner stands on the side of the patient, face to face (1-3 Leopold maneuvers), the 4th maneuver is performed when the doctor is positioned faces the patient's feet.

Stages of the examination

The 1st maneuver (grip) of the external obstetric examination allows to determine the height of the uterine fundus and part of the fetus which is located at the fundal area of the uterus (Figure 1a).

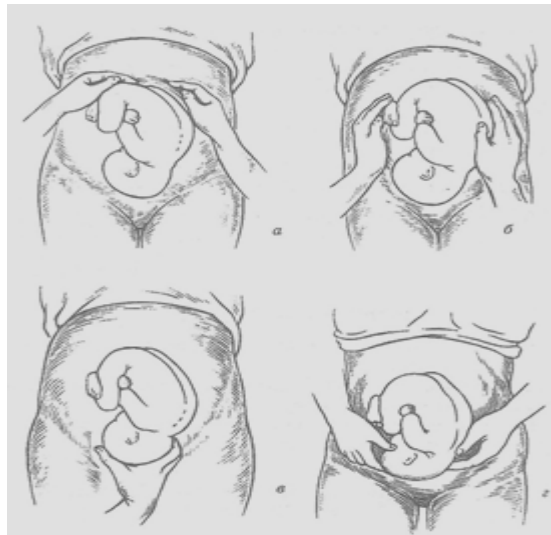


Figure 1. Obstetric grips

a – first grip; б – second grip; в – third grip; г – fourth grip

The palmar surfaces of both hands are placed over the fundus of the uterus so that the fingers are facing the nail phalanges to each other. Palpation should be conducted with utmost gentleness. Most often (96%) at the end of a pregnancy the buttocks are determined in the fundus of the uterus. They differ from the fetal head with less roundness and sphericity, less density and less smooth surface. The head is palpated as smooth, hard and globular mass ; broad, soft and irregular mass suggestive of breech. In transverse lie, neither of the fetal poles is palpated in the fundal area.

The second maneuver is used to determine the back and limbs of the fetus (fetus position).

Both hands move to the uterine side surfaces at the navel level (Figure 1б). Palpation of parts of the fetus is performed alternately with the right and left hand. The left hand lies in one place; the fingers of the right hand slide along the

left side of the uterus and feel the part of the fetus turned there. Then the right hand lies on the side wall of the uterus, and the left hand touches the parts of the fetus facing the right side of the uterus. With the longitudinal lie of the fetus the back is probed on one side, with the small knob-like irregular parts of the fetus on the opposite side of the limb. The back is located as a firm broad smooth object, while the small parts of the fetus are felt by the examining fingers as small prominences which often change their position. If the fetal back is turned to the left - the first position, if to the right - the second position.

The third maneuver is used to determine the presenting part of the fetus (Figure 1B).

One hand (usually the right one) is placed slightly above the symphysis pubis so that the thumb is on one side and the four other fingers on the other side of the uterine lower segment. The fingers are then slowly and gently depressed into the abdomen to grasp the presenting part. Determine the presentation: head or breech. The head is felt as a dense and rounded part with definite outlines. In breech presentation the fingers feel a bulky but softer part having no rounded shape. The presenting part can not be identified in transverse or oblique presentation. The 3rd maneuver can be used to assess mobility of the head. By short slightly pushing the head the examiner tries to move it to either side. The head is ballotable, which can be readily felt by the fingers. The higher the head locates above the entrance to the true pelvis the stronger the balloting. With the head standing at the entrance to the true pelvis and also with the breech presentation – balloting is not available.

The fourth maneuver of external obstetric examination (Figure 1r) aims to determine the location of the presenting fetal part (above the pelvis inlet, in the inlet or in the cavity of the true pelvis) relative to the plane of entry into the true pelvis.

The examiner faces the patient's feet.

The hands are placed on both sides of the lower part of the uterus with the tips of the fingers reaching the symphysis. The fingers are then gently impressed into the abdomen in the direction of the pelvic cavity, between the presenting part and the symphysis. The degree of insertion of the presenting part into the true pelvis is determined as follows: if it is located over the pelvic inlet then the examiner can put the fingers between the fetus head and the pubic bones; if the presenting part is pressed to the pelvis inlet, then fingers can not be held between it and pubic bones.

MEASUREMENT OF THE EXTERNAL DIMENSIONS OF THE PELVIS

Purpose: measuring the size of the false pelvis for indirect sizing of the true pelvis.

Equipment: couch, pelvimeter.

The position of the patient: when measuring the transverse dimensions of the pelvis (*distantia spinarum*, *distantia cristarum*, *distantia trochanterica*), the pregnant woman lies on the couch on the back, her legs extended and held together. While measuring the direct size (*conjugata externa*) the pregnant woman lies on the left (right) side with her back to the doctor, the lower leg is flexed in knee and hip joints, the upper one is extended.

Preliminaries: The examiner is positioned faces the patient's face. To take measurements, the practitioner takes the pelvimeter so that the scale is facing upward, and the thumb and index fingers lie on the buttons of the pelvimeter (Figure 2).

Stages of measurement of the external dimensions of the pelvis.

1. Measurement of *Distantia spinarum*: without releasing the pelvimeter from the hands, with the index fingers we find the *Spina Iliaca Anterior Superior* on the both sides and put the pelvimeter's buttons at these points along the outer edge. On the pelvimeter's scale we determine the size: normally it is not less that 26 cm.

2. Measurement of *Distantia cristarum*: do not take away the pelvimeter from the previous points, glide along the outer edge of the Iliac Crest until the maximum distance (the farthest points). Normally, this size is not less that 28 cm.

3. Measurement of *Distantia trochanterica*. The pelvimeter arms rest on the most prominent points of the great trochanters of the femur. The normal distance 30 cm and more. In obese women the location of the wanted points can be facilitated if the woman turns her leg inwardly and outwardly.

4. Measurement of *Conjugata externa* (Figure 3). One arm of the pelvimeter rests on the middle of the superior margin of the symphysis, and the other arm – on the the junction of the V lumbar and I sacral vertebrae (*supracranial fossa*). The *Conjugata externa* is normally not less than 20 cm.

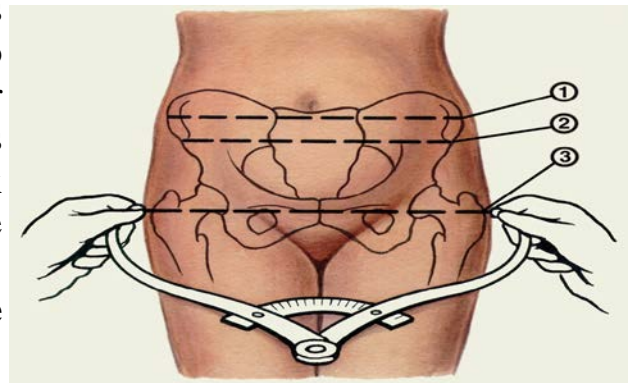


Figure - 2. Measurement of the transverse dimensions of the pelvis

- 1- *Distantia cristarum*;
- 2- *Distantia spinarum*;
- 3- *Distantia trochanterica*

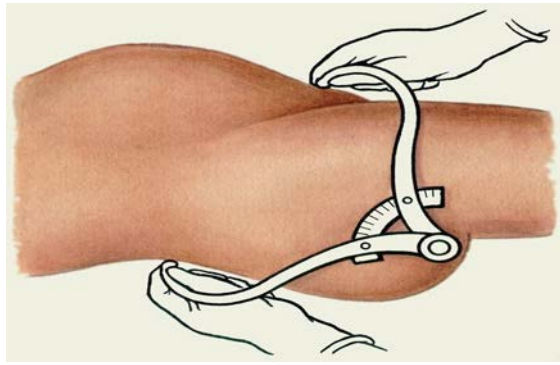


Figure 3. Measurement of Conjugata externa

The digital vaginal examination of the pregnant woman prior to the labor in order to assess the state of the cervix

Purpose: assess readiness of the body for birth.

Equipment: a gynecological chair; sterile gloves; disposable drape, sponge holding forceps or dissecting forceps, sterile gauze pieces, antiseptic solution.

The position of the patient: the woman is asked to lie on a gynecological chair covered with a disposable drape in a dorsal position the thighs abducted with the knees supported in raised stirrups, with the buttocks placed on the foot-end of the table.

Preliminaries.

The patient is to empty the bladder prior to examination.

An obstetrician carry out hands hygiene, puts on sterile gloves.

A midwife treats the labia, pubis, inner thighs, perineum and anus area with a gauze piece moistened with antiseptic solution.

Manipulation stages.

- The labia are parted with the thumb and the index finger of the one hand.

- The second and third fingers of the dominant hand should be lubricated, and then be introduced into the vagina, passing along the posterior wall until the cervix is felt; while the thumb is held up, the ring finger and the little finger are bent and pressed to the palm of the hand.

The other hand is now placed suprapubically over the patient's lower abdomen.

With the finger located inside the vagina, gentle and systematic examinations are to be done to note: vagina walls – stretch ability, any pathology (scars, septum, tumor); cervix – position, consistency, length,

dilation; amniotic membrane; presenting part; pelvic bones. Examine diagonal conjugate.

To assess the length of the cervix, attach an index or middle finger to it from the lateral side (Figure 4). Indicate the length of the cervix in centimeters.

To determine the opening of the cervical canal, insert the tip of one or both fingers into the external os (Figure 5).

If we pass the cervical canal - assess the condition of the amniotic membranes: intact or ruptured.

Determine the presenting part of the fetus: the smooth, hard and globular mass suggestive of head; broad, soft and irregular mass suggestive of breech. In the transverse and oblique lie neither of the fetal poles is palpated. Assess the station of the head in relation to the pelvic inlet.



Figure 4. Determining the length of the cervix



Figure 5. Assessment of the opening of the cervical channel

Palpate the inner surface of the sacrum, symphysis, lateral walls of the pelvis, in the presence of exostoses, evaluate their size and localization, and clarify whether the sacral promontory can be reached or not. When promontory is reached, measure the diagonal conjugate and determine the true conjugate value.

Having completed the examination, help the woman into a seated position by sliding back up along the table first, and then removing feet from the stirrups.

The cervix can be classified into *immature*, *not enough mature*, *mature* (“ripe”) related on a scale Bishop

Bishop score

| Parameter | Score | | |
|----------------------|--------------------|---|---|
| | 0 | 1 | 2 |
| Cervical consistency | Firm | Medium | Soft |
| Cervical opening | External os closed | 1-2 cm The cervical canal admits one finger till the internal os | 3-4 cm The cervical canal admits one or more fingers above the internal os |
| Cervical length | >2 cm | 1-2 cm | ≤1 cm |
| Cervical position | Posterior | Midline | Anterior |

0-1 point – the cervix is “immature”; 3-4 points – "not enough" mature; 5-8 points – "mature".

Description of the vaginal examination for a “mature” cervix (7 scores)

P. V. The vagina is normal. The cervix is in the middle position, soft, shortened to 1 cm; the cervical canal admits one finger easily. The amniotic membranes are intact. The head presents to the pelvis entrance, a sagittal suture is in the right oblique diameter, a small fontanel is on the left anteriorly, and a large one is not determined. The sacral promontory cannot be reached. The bones of the true pelvis are smooth, exostoses and tumors are not detected.

Description of the vaginal examination for a “not mature” cervix (0 scores)

The vagina is free. The cervix is rejected to the sacrum, firm, 2.5 cm length, the cervical canal is closed. Through the vaginal fornices the presenting part is determined – the head, movable above the pelvic entrance. The sacral promontory cannot be reached. The walls of the true pelvis are smooth, exostoses and tumors are not detected.

The bimanual vaginal-abdominal examination of the woman in labor in the active phase, description of it

Purpose: to assess the dynamics of cervical dilatation in childbirth.

Equipment: a gynecological chair; sterile gloves; disposable drape, sponge holding forceps or dissecting forceps, sterile gauze pieces, antiseptic solution.

The position of the patient: the woman is asked to lie on a gynecological chair covered with a disposable drape in a supine position the thighs abducted with the knees supported in raised stirrups.

Preliminaries:

The patient is to empty the bladder prior to examination.

An obstetrician carry out hands hygiene, puts on sterile gloves.

A midwife treats the labia, pubis, inner thighs, perineum and anus area with a gauze piece moistened with antiseptic solution.

Manipulation stages:

- The labia are parted with the thumb and the index finger of the one hand.

- The second and third fingers of the gloved other hand should introduced into the vagina, passing along the posterior wall until the cervix is felt.

Gentle and systematic examinations are to be done to note the vagina, the cervix (dilation, consistency); amniotic membranes; presenting part; pelvic bones. Examine diagonal conjugate (Figure 6).



Figure 6 Palpation of the lower pole of the presenting head ("the leading point") and small fontanel

Description of the vaginal examination

P.V. The vagina is normal. The cervix is effaced, its edges are soft, thin, dilatable, dilation is 6 cm. The amniotic membranes are intact; during uterine contraction the “bag of waters” becomes tense and convex. The head presents to the pelvis entrance, a sagittal suture is in the right oblique diameter, a small fontanel is on the left interiorly, and a large one is not determined. The sacral promontory cannot be reached. The walls of the true pelvis are smooth, exostoses and tumors are not detected.

The bimanual vaginal-abdominal examination of the parturient woman in the second phase of labor (head of the fetus occupies midpelvic plane) and the description of data obtained

Purpose: determination of the level of the station of the presenting part of the fetus when moving through the cavity of the true pelvis.

Equipment: a gynecological chair; sterile gloves; disposable drape, sponge holding forceps or dissecting forceps, sterile gauze pieces, antiseptic solution.

The position of the patient: the woman is asked to lie on a gynecological chair covered with a disposable drape, in a supine position the thighs abducted with the knees supported in raised stirrups.

Preliminaries

The patient is to empty the bladder prior to examination.

An obstetrician carry out hands hygiene, puts on sterile gloves.

A midwife treats the labia, pubis, inner thighs, perineum and anus area with a gauze piece moistened with antiseptic solution.

Manipulation stages.

- The labia are parted with the thumb and the index finger of the one hand.

- The second and third fingers of the gloved other hand should be introduced into the vagina, passing until the fetal head is felt.

Gentle and systematic examinations are to be done to note the cervix (dilation, consistency); amniotic membrane; presenting part; pelvic bones. Examine diagonal conjugate.

Description of the vaginal examination

P.V. The cervix is completely dilated. The amniotic membranes are ruptured. The fetal head occupies the inner surface of the symphysis and 2/3 of the pelvic surface of the sacrum, the sagittal suture occupies the right oblique diameter, a small fontanel is on the left interiorly, and a large one is not determined. The ischial spines cannot be reached.

MIDWIFERY SUPPORT IN VERTEX LABOR

Purpose: careful delivery of the fetus, prevention of the injuries to the birth canal.

Equipment: Rakhmanov's bed, sterile aural forceps or tweezers, sterile gloves, drapes, gauze pieces or cotton swabs, antiseptic solution.

The position of the patient: the mother is lying on her back on Rachmanov's bed with her hips and knees are fully flexed with the legs

abducted and raised, and the feet resting in raised stirrups, under the woman is a sterile draper.

Preliminaries: A midwife in the cap, mask, sterile (clean) coat and gloves treats vulva, inner thighs and perineum with antiseptic solution using aural forceps and gauze pieces or cotton roll.

A sterile pad is placed over the anus.

One should begin to provide the manual assistance since the crowning of the head.

Stages of the manipulation

1. Delivery of the head until the parietal tubercles

Borrowing of tissues from the labia is carried out in order to reduce the perineal strain (“Protection of the perineum”). To do this, place the right hand above the perineum so that four fingers are on the left labia and the thumb is on the right labia. Labial tissue is carefully lowered downward towards the perineum (Figure 7).

If the perineum is a significant obstacle to the birth of the head or there are signs of its possible rupture, one should not strive to maintain its integrity. It is necessary to perform operative expansion of the vulvar ring (episiotomy or perineotomy).

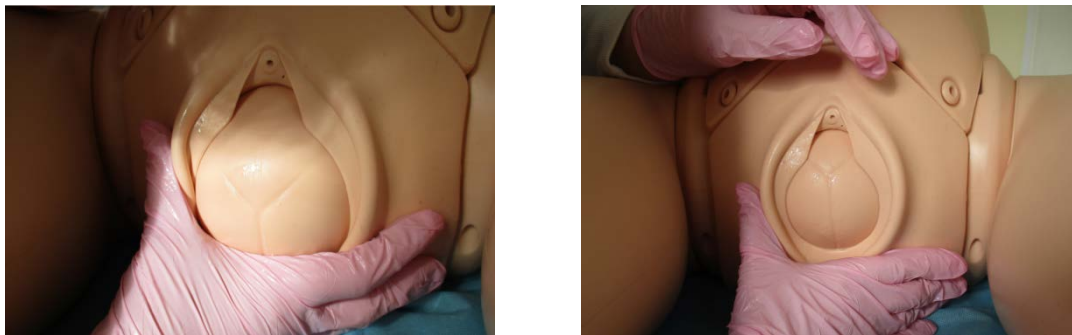


Figure 7 Assisted delivery of the head

2. Birth of the head (Figure 8).

After the birth of parietal tubercles and fixation of the suboccipital fossa to the lower edge of the symphysis the mother is offered to breathe deeply and frequently with her mouth open and not to bear down during this contraction (“*regulation of pushing process*”). The fetal head is born during one of the contraction, but without pushing!

The midwife with her right hand "descends" the perineal tissues from the fetal forehead and from the face. In this case, the head is completely born.

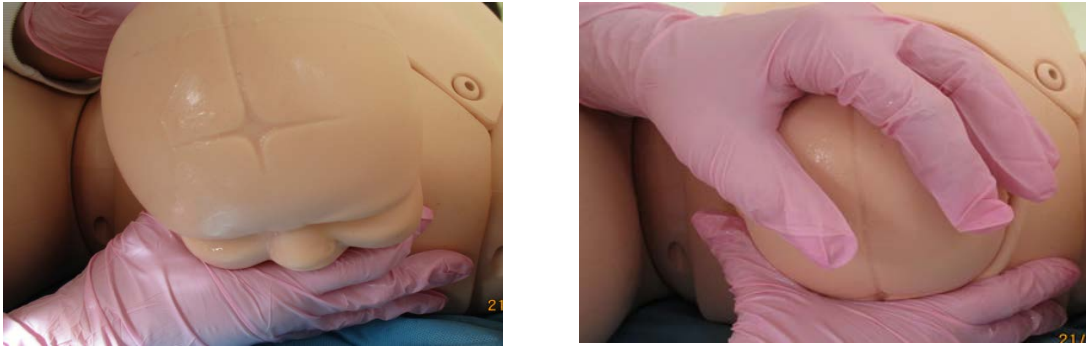


Figure 8. Delivery of the head

3. Delivery of the fetal shoulders and expulsion of the trunk.

With normal childbirth, the shoulders should be born in one pushing contraction with the head. At the same time, hold the head with your left hand, helping to move it first down to the birth of the upper third of the front shoulder, and then up to give birth to the back handle (Figure 9).

After the delivery of the shoulders, the forefingers of each hand are inserted under the axillae, the baby is raised anteriorly and upwards, finishing the delivery.



Figure 9. Birth shoulders

If the shoulders are not born by itself, one should wait the next contraction. In this time the practitioner put the both palms on the right and left temporo-buccal region of the head of the fetus and keep the head carefully according it's itself moving. After upper shoulder would be fixed under the symphysis, the left hand gently lifts the head up, and the right hand shifts the perineum from the posterior shoulder.

After birth of a head the neck region is explored and if the cord is felt (round the neck of the baby) it is pulled to give some slack. If entanglement is tight, cut the umbilical cord between the two clamps. Wait for the next pushing. Do not hurry! Cyanosis of the fetal face is not a dangerous sign!

The head has been born should not be turned and pulled for it. The birth of the fetus must occur on its own without the intervention of the practitioner, because one does not extract the fetus, but only supports it from sagging as it is born.

CONDUCT OF NORMAL CHILDBIRTH OUTSIDE THE MATERNITY HOSPITAL

1. Evaluate the general condition of the patient: pulse, blood pressure, skin color, temperature, urination and contractions.

2. Provide the mother with the most adequate emotional support and confidence in the successful outcome of the birth; explain how to behave during contractions and pushes. Give the information about how to work with any pain she experience (relaxation technique and self-massage).

3. Prepare a place for childbirth and a newborn - lay out clean dry linen or a disposable bag for childbirth, heat the linen which will be used for baby dried and swaddled, prepare the necessary tools for taking birth (scissors to divide the umbilical cord, sterile clamps or ligatures), antiseptic solution.

During the second stage of labor woman can adopt any position that she find most comfortable. Most common - partial sitting (45%), her thighs flexed and abducted.

The external genitalia and inner side of the thighs should be carefully cleaned with antiseptic solution. One clean drape (sheet) is placed beneath the buttocks. It's desirable; a sterile pad is placed over the anus.

Explain the mother that she has not bear down until she'll experience great pressure on the rectum and feel a spontaneous strong urge to push. Check the station of the head in the pelvic cavity using external maneuvers through the anterior abdominal wall or through the right labia major tissue (Piskachek method).

The practitioner cleans the hands with the antiseptics and puts on sterile gloves. Mask is justified.

4. Perform amniotomy if amniotic membranes do not ruptured in time.

One should begin to provide the manual assistance (Midwifery support) since the 'crowning' of the head.

Perform the primary care of the newborn; prevent cooling of the baby's body.

Holding the newborn in the hands, evaluate the newborn's condition. If the newborn is healthy, that is: the one breathes, screams, has a normal tone, the baby is dried with a dry sterile warm towel and placed on the mother's chest, helped the baby find the mother's nipple. Let baby suckle for about a minute, then swaddle the baby in the dry, clean, heated linen.

5. In 5-10 minutes after the birth of the baby (if there is no bleeding from the vagina) to check signs of placental separation.

When the features of placental separation are confirmed, the patient is asked to bear down to expel the placenta.

As soon as the placenta passes through the introitus, but membranes delay into the vagina, placenta is grasped by both hands and twisted round

and round with gentle traction so that the membranes are delivered. The other method to allow membranes to peel off completely is asking a woman in labor to raise her pelvis.

If the spontaneous placental expulsion fails use the special methods to remove the separated placenta.

The placenta (maternal and fetal surfaces) and the membranes are to be inspected carefully to see that it is complete and a succenturiate lobe is absent.

6. After the delivery of the placenta the external massage of the uterus is carried out to the appearance of uterine contractions.

The patient is encouraged to empty bladder.

The uterus is massaged in every 15 minutes during the first two hours after delivery.

7. Transfer the patient to an obstetric unit as soon as it will be possible.

THE PRIMARY CARE OF THE NEWBORN

Purpose: the primary care of the newborn.

Equipment: a tray for newborn, two sterile Kocher's forceps, sterile scissors, cord-clamp, gauze pieces, three napkins, heated swaddling table, antiseptic solution.

Preliminaries: take a sterile tray for the newborn, cover it with a sterile warm napkin, cover the swaddling table with a sterile napkin, and turn on the heating.

Stages of performing the primary care of the newborn.

Holding the newborn in hands, evaluate the newborn's condition. If the newborn is healthy (breathes, screams, has a normal tone), the baby is wiped with a dry sterile napkin and shown to the mother, the gender is announced.

Remove the wet napkin, place the baby on the mother's abdomen and dry the baby with a new sterile warm napkin.

Not earlier than after 1 min (in Rh-negative women immediately) after the birth of the baby, two sterile Kocher's forceps are placed on the umbilical cord, the near one is placed 10 or 12 cm away from the umbilicus. The cord is cut in between the forceps with a sterile scissors (Figure **10a**).

The baby is put on the mother's breast.

The baby is transferred to a heated table covered with sterile warm napkin.

The umbilical cord is clamped 1 cm away from the umbilical ring by the sterile cord-clamp and is cut with sterile scissors 1,5-2 cm beyond the clamp. The cut end of the umbilical cord is then dried with a sterile gauze piece (Figure **10b**).

Note. If the mother has not been examined, prophylaxis of gonoblenorea is performed: erythromycin ointment put under the lower eyelid of the newborn one hour after birth.

For newborn born through meconium-stained fluid, suctioning of the mouth and pharynx or the nose with a catheter is performed.



a



b

Figure 10 Clamping and ligature of the cord: (a) - first step, (b) – second step.

MEASURES FOR THE PREVENTION OF HYPOTONIC UTERINE BLEEDING

Purpose: the prevention of hypotonic uterine bleeding.

Risk group for hypotonic bleeding are: women multiparous, having polyhydramnios, large fetus, abnormalities of uterine activity, preeclampsia, extragenital diseases and complicated obstetric and gynecological history.

Equipment: sterile syringe 5 ml or 20 ml, sterile urinary catheter, ampoule with oxytocin 1 ml (5 IU) or carbetocin 1ml or methylergometrine 1 ml, vial with 0.9% sodium chloride solution and a sterile system for intravenous infusion, gauze pieces, alcohol 96%, ice bag.

The position of the patient: the woman lies on the Rakhmanov's bed on her back.

Stages of the manipulation

Catheterization of the peripheral vein is performed during the second stage of labor and 0.9% sodium chloride solution administration is started.

Catheterization of the maternal bladder is carried out immediately after the childbirth.

After the delivery of the placenta the external massage of the uterus is carried out and uterotonics are administered using one of the following methods:

Oxytocin intravenously 5 U in 500 ml of 0.9% sodium chloride solution – in drop 40 drops per minute or intramuscularly 1 ml (5 U)
Methylergometrine 1 ml (0.2 mg) intravenously slow or intramuscularly.
Carbetocin 1 ml (100 mg) intravenously slowly or intramuscularly.

INSPECTION OF THE CERVIX AFTER DELIVERY

Purpose: diagnosis the rupture of the cervix after the delivery.

Equipment: Rakhmanov's bed, sterile vaginal speculum, sponge holding forceps (ring forceps), sterile drape and gauze pieces, sterile gloves, antiseptic solution.

The position of the patient: the woman is lying on her back on the Rakhmanov's bed in lithotomy position; under the woman is a sterile drape.

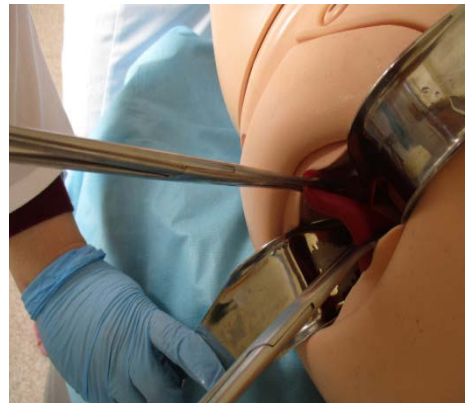
Preliminaries: An obstetrician carry out hands hygiene, puts on sterile gloves.

Manipulation stages.

- Treat the labia, pubis, inner thighs, perineum and anus area with a gauze piece moistened with antiseptic solution.
- Separate the labia by the first and second fingers of the left hand.
- Introduce the Sims' vaginal speculum into the vagina sideways by your right hand; rotate the speculum and press, pulling the posterior vaginal wall down.
- Insert the vaginal wall retractor into the vagina, rotate it and pull up the anterior vaginal wall, than pass the speculum and retractor to the assistant (Figure 11a).
- Apply two forceps to the visible part of the cervix at a distance of 3-4 cm from each other (Figure 11b), examine the cervix between the forceps.



a



b

Figure 11 Steps of the inspection of the cervix after delivery

Pull the right edge of the cervix to the left by the one forceps to see the next section of the cervix. Then remove one of the forceps and re-place it on the other side of the fixed forceps on that part of the cervix that became visible after pulling.

METHODS OF EXPULSION OF THE SEPARATED PLACENTA IN THE THIRD STAGE OF LABOR

The aim: to remove the placenta if it is separated but not delivered (delay in the uterus).

Equipment: Rakhmanov's bed, sterile drape, urinary catheter.

The position of the patient: the mother is lying on her back in lithotomy position on the Rakhmanov's bed, covered with a sterile drape.

Preliminaries: Assess the signs of separation of the placenta.

The bladder of the patient should be emptied by a catheter.

Stages of the application procedure

1. Abuladze's method

The obstetrician stands on the side of the woman. The anterior abdominal wall (together with the rectus abdominal muscles) is taken by both hands to form a longitudinal fold (Figure 12) and the woman is asked to bear down. The separated placenta would normally slide out without difficulty.

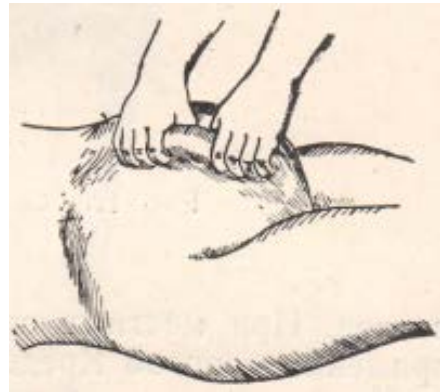


Figure 12 Delivery of the placenta according to Abuladze

2. Genter's method.

The obstetrician stands on the side of the patient facing her legs.

The bladder is emptied and the uterus is moved to the median position and massaged. The clenched fists are placed on the uterine fundus (in the insertion of the fallopian tubes) and a pressure is applied to the uterus in the downward and medial direction (Figure 13). The woman should not push during this procedure.

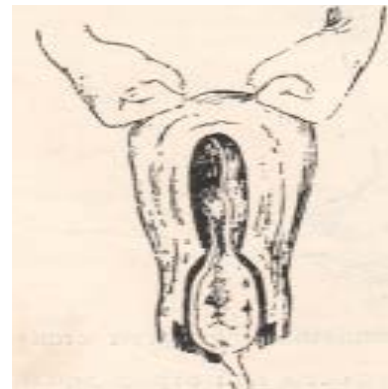


Figure 13 Genter's method

3. Lazarevich-Crede's method.

The obstetrician stands on the side of the patient, facing her legs.

The bladder is emptied, and the uterus is moved to the median position and massaged. The obstetrician puts the hand on the uterine fundus so that the thumb is located upon the

anterior wall of the uterus; the palm is on the uterine fundus, and the four fingers on the posterior surface of the uterus. The obstetrician compresses the uterus in the downward direction along the pelvic axis. The separated placenta is thus removed from the uterus (Figure 14).

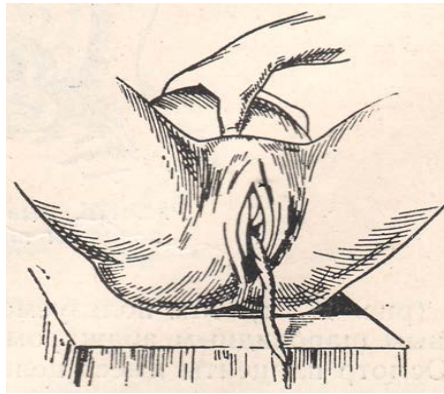


Figure 14 Lazarevich-Crede's method

MANUAL SEPARATION AND REMOVAL OF THE PLACENTA

Purpose: to stop bleeding in the 3^d stage of labor if placenta is not separated (it means partial adherence of the placenta), delivery of the placenta in 30 minutes after birth of baby if bleeding and signs of placenta separation are absent (complete adherence).

Equipment: Rakhmanov's bed, sterile gloves; two sterile drapes, sponge holding forceps or tweezers, sterile gauze pieces, bladder catheter, antiseptic solution.

The position of the patient: the mother is lying on her back in lithotomy position on the Rakhmanov bed, covered with a sterile drape

Preliminaries

Empty the bladder with the catheter.

The obstetrician wears an apron, a mask, a cap; perform hand hygiene till the elbows, and puts on a sterile medical gown and sterile gloves. Put a sterile drape on the abdomen.

General intravenous anesthesia is necessary.

Stages of the operation

Treat the labia, pubis, inner thighs, perineum and anus of the woman with a gauze piece moistened with aseptic solution. Hold the piece with the tweezers.

While introducing the hand, the labia are separated by the fingers of the left hand.

A conically right “obstetrician hand” is introduced into the vagina be directed with its palm toward the symphysis. The hand continue to move further into the uterine cavity follow the umbilical cord, in order to reach the placenta and find it’s margin. The hand should reach the uterine fundus. (Figure 15a).

Fix the bottom of the uterus with the left hand through a sterile drape (Figure 15b).

After reaching the placenta and finding it’s margin, the hand should be inserted in space between the placenta and the uterine wall and perform detachment of the placenta. While the right hand acts like a saw to separate the placenta from the uterine wall, the left hand should press gently on the uterine bottom to aid the internal hand.

As soon as the entire placenta has thus been separated, remove the placenta from the uterus by pulling it on the umbilical cord by the outside hand.

The internal hand remains in the uterus to examine it for complete removal of the placenta. The uterus is manually explored to identify uterine rupture and remove the retained tissue and clots.

Remove the inner arm from the uterus, making sure the uterine cavity has been examined thoroughly.

Send the placenta to a histological study. Fill out a referral form.

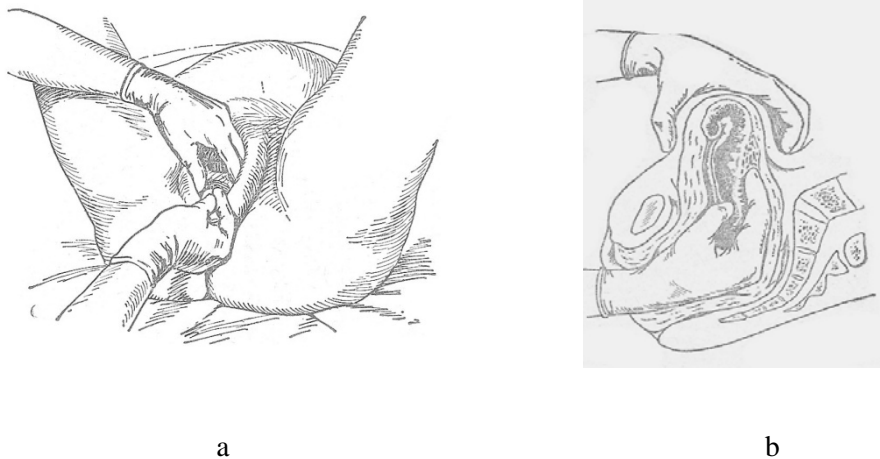


Figure 15 a, b. The main stages of the operation of manual separation and removal of the placenta.

MANUAL EXAMINATION OF THE UTERUS

The aim: to check the integrity of the uterine walls after the delivery in women with a uterine scar, after assisted delivery (forceps or vacuum) to

identify uterine rupture, to remove the retained part of the placenta, to stop hypotonic uterine bleeding (uterine massage on the fist).

Equipment: Rakhmanov's bed, sterile gloves; two sterile drapes, sponge holding forceps or tweezers, sterile gauze pieces, bladder catheter, antiseptic solution.

The position of the patient: the mother is lying on her back in lithotomy position on the Rakhmanov's bed, covered with a sterile drape

Preliminaries.

To empty the bladder with the catheter.

The obstetrician wears an apron, a mask, a cap; perform hand hygiene till the elbows, and puts on a sterile medical gown and sterile gloves. Put a sterile drape on the lower abdomen.

General intravenous anesthesia is necessary.

Stages of the operation

- Treat the labia, pubis, inner thighs, perineum and anus of the woman with a gauze piece moistened with aseptic solution. Hold the piece with the tweezers.

- While introducing the hand, the labia are separated by the fingers of the left hand.

- A conically shaped right "obstetrician hand" is introduced into the vagina and further into the uterine cavity. The invading hand should be directed with its palm toward the symphysis, reaching the uterine fundus.

- The left hand should then be placed on the bottom of the uterus.

- The uterus is manually explored. The examining hand feels thoroughly the uterine walls, its fundus and the tube angle, successively moving from the fundal area to the internal uterine os. The uterus is manually explored to search for retained tissue and identify uterine rupture.

The outer hand helps in the operation by pressing on the bottom of the uterus through the anterior abdominal wall.

- Remove the inner hand from the uterus

ASSISTANT FRANK BREECH DELIVERY ACCORDING TO TSOVYANOV I TECHNIQUE

Purpose: to maintain normal attitude of the fetus, to prevent extension of the arms or extension of the fetal head during the delivery of the trunk.

Equipment: Rakhmanov's bed, sterile aural forceps or tweezers, sterile gloves, drapes, gauze pieces, antiseptic solution.

The position of the patient: the mother is lying on her back on Rachmanov's bed with her hips and knees are fully flexed with the legs abducted and raised, and the feet resting in raised stirrups, under the woman is a sterile drape.

Preliminaries: A practitioner in the cap, mask, sterile (clean) coat and gloves treats labia, bosom, inner thighs and crotch with antiseptic solution with aural forceps and gauze piece.

One should begin to provide the manual assistance since the eruption of the buttocks.

Stages of the manipulation

When the hips of the fetus are delivered, they are grasped by hands as follows: the thumbs of both hands are pressed against the legs flexed, while the other fingers of both hands hold the fetus by the sacrum (Figure 16a).

As the fetus body is being expelled from the uterus, the obstetrician moves his hands in the direction of the pudendal cleft of the parturient, pressing carefully the flexed legs against the abdomen by the thumbs; the other fingers slide higher along fetal back (Figure 16b). The delivered body is lifted in the direction of the extended pelvic axis.

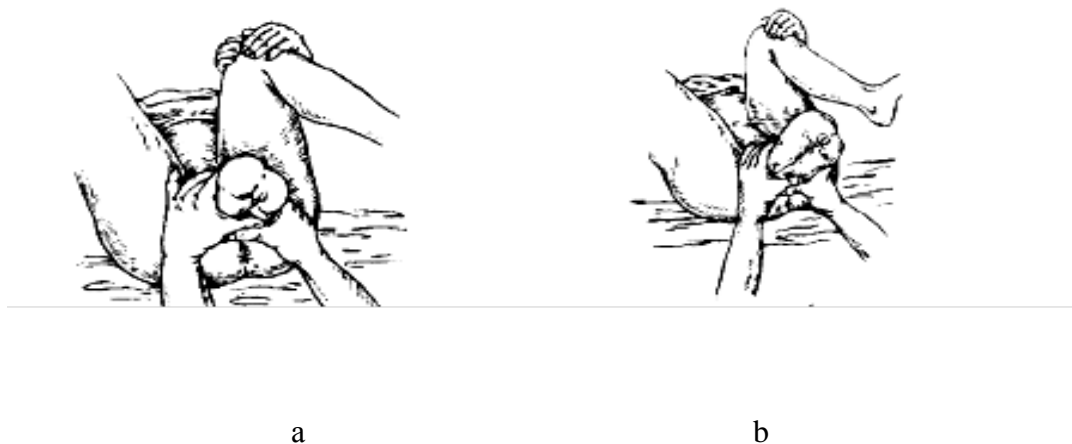


Figure 16. Assistant frank breech delivery according to Tsovyanov I.

As soon as the shoulders are delivered, the arms usually prolapse spontaneously. If it fails, they are released as follows. Without changing the position of the obstetrician hands, the shoulders (are turned to align with the anteroposterior diameter of the maternal pelvis) and the body is deflexed posteriorly: the anterior arm is delivered from under the pubic arch. The body is then lifted anteriorly and the posterior arm is delivered over the perineum.

The heels of the fetus are delivered (prolapse) spontaneously simultaneously together with the posterior arm, and the chin and the mouth appear at the pudendal cleft. The head is delivered spontaneously by strong expulsive efforts, while the body should at this moment be descended until the subocciput hinges under the symphysis pubis, and then lifted anteriorly toward the mother's abdomen.

MANUAL ASSISTANCE IN FOOTLING PRESENTATION ACCORDING TO TSOVYANOV II METHOD

Purpose: an increase the transverse dimensions of the fetus to better prepare the genital tract (including achieve the full dilation of the cervix) for delivery of the shoulders and the head of the fetus.

Equipment: Rakhmanov's bed, sterile aural forceps or tweezers, sterile gloves, drapes, gauze pieces, antiseptic solution.

The position of the patient: the mother is lying on her back on Rachmanov's bed with her hips and knees are fully flexed with the legs abducted and raised, and the feet resting in raised stirrups, under the woman is a sterile drape.

Preliminaries: A practitioner in the cap, mask, sterile (clean) coat and gloves treats vulva, inner thighs and perineum with antiseptics using aural forceps and gauze pieces and sits down opposite the parturient.

One should begin to provide the manual assistance since the descending the leg of the fetus into vagina after rupture of the membranes.

Stages of the manipulation.

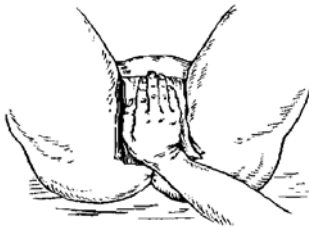


Figure 17. Manual assistance in footling presentation according to Tsovyanov II

The obstetrician covers the external genitalia with a sterile drape, put the palm over the drape closing the introitus and by that prevents premature expulsion of the legs (Figure 17). To hold the hand until the uterine os has completely opened. Since the legs are retained

into the vagina, the fetus should to squat (a position in which knees are bent and heels are close to buttocks). So, footling presentation is converted to complete breech presentation.

The hand should be removed only when signs of the full opening of the cervix appear: strong protrusion of the perineum, opening of the anus, strong urge to push, birth of the leg next to the obstetrician's hand.

Later on, conduct vaginal breech delivery, using methods assisted breech delivery if required.

ASSISTED BREECH DELIVERY – CLASSICAL MANEUVER (Delivery of arms and of the after-coming head) Delivery of shoulder and extended arms (Levret, Lachapelle manoeuvre)

Purpose: help the birth of the fetal shoulder and the extended arms occur in the second stage of labor.

Equipment: Rakhmanov's bed, sterile aural forceps or tweezers, sterile gloves, drapes, gauze pieces, antiseptic solution.

The position of the patient: the mother is lying on her back on Rachmanov's bed with her hips and knees are fully flexed with the legs abducted and raised, and the feet resting in raised stirrups, under the woman is a sterile drape.

Preliminaries:

A practitioner puts on the cap and mask, performs hand hygiene, puts on sterile gloves.

Place a sterile drape under the woman in labor.

Episiotomy is justified.

Treat the vulva, inner thighs and perineum with antiseptics using a gauze piece.

One should begin to provide the manual assistance since the lower end of the scapula is visible.

Stages of the manipulation

1 Delivery of the posterior arm

The obstetrician fingers (at the first position – left, at the second position – right) are locked around the baby's ankles and the legs are pulled upward and toward the mother's groin. The baby is lifted to the side to which the ventral aspect of the fetus is directed – to the right mother's groin at the first position, to the left – at the second position of fetus (Figure 18).

The operator uses the hand corresponding to the fetal back – at the first position – right, at the second position – left. The second and the third fingers of the hand slide into the vagina along the fetal back and the posterior arm, until the bend of the elbow. By pressing the elbow, the posterior arm is gently hooked out. The arm should slide over the fetal face downward, as if performing “the washing movement”.



Figure 18 Legs set aside the opposite groin

2. 180 degree rotation of the fetus

To deliver the anterior arm, the 180 degree rotation of the fetus should be done.

The body is held by both hands at the chest (together with the extracted arm). The both thumbs are placed along the spinal column and the other fingers along the anterior surface of the chest (Figure 19).

The baby is 180 degree rotated, keeping the back looking forwards until the anterior arm comes under the hollow of the sacrum and becomes the posterior one.



Figure 19. 180 degree rotation of the fetus

3. Delivery of the second arm

When the rotation is complete, the legs of the fetus should be grasped again and lifted upward in the direction of the other groin. The second arm is delivered by the same technique, as it was described above (Figure 20).



Figure 20. Delivery of the second arm when the 180⁰ rotation is complete (view from the abdomen side)

Delivery of the after-coming head (Mauriceau-Levret-Lachapelle manoeuvre)

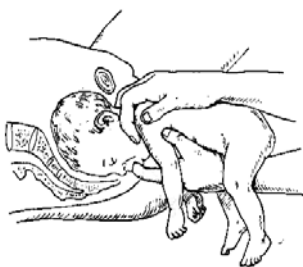


Figure 21. Delivery of the head (Mauriceau-Levret-Lachapelle method)

The fetus is placed on the supinated left forearm with the limbs hanging on either side.

Laying the child along the arm, the index finger is placed in the mouth. Traction by this finger will tend to promote flexion of the head. The index finger of the other hand is placed on the left shoulder, the

middle finger presses on the occiput and the other two fingers grasp the other shoulder (avoid the supraclavicular fossa) (Figure 21).

Traction of the two hands is now given in downward direction till the nape of the neck is visible under the pubic arch. Thereafter, the fetus is

carried in upward and forward direction toward the mother's abdomen releasing the face, brow, occiput and vertex. **NB!** The baby's body must not be elevated until the fetal occiput has descended underneath the symphysis (avoids risk of damage to the baby's cervical spine).

**BREECH EXTRACTION:
EXTRACTION OF THE FETUS BY THE LEG
(IN SINGLE OR DOUBLE FOOTLING PRESENTATION)**

Purpose: the urgent delivery if occurred: grave diseases requiring urgent termination of labor (eclampsia, heart diseases, etc.); acute asphyxia of the fetus; after the classical podalic version.

Equipment: Rakhmanov's bed, sterile aural forceps or tweezers, sterile gloves, drapes, gauze pieces, antiseptic solution.

The position of the patient: the mother is lying on her back on Rachmanov's bed with her hips and knees are fully flexed, the legs abducted and raised and the feet putted in raised stirrups.

Note: Rachmanov's bed should be covered with a sterile drape.

Preliminaries:

A practitioner puts on the cap and mask, performs hand hygiene, puts on sterile gloves.

Place a sterile drape under the woman in labor.

Treat the vulva, inner thighs and perineum with antiseptics using a gauze piece.

Intravenous general anesthesia is required. Episiotomy is justified.

As the baby emerges, a warm towel should be wrapped around the body.

Stages of the manipulation

The first step – grasp and extraction (delivery) of the fetus till the navel

The labia are parted with the thumb and the index finger of the left hand.

The hand is introduced into the vagina. The most convenient hand is the one which corresponds to the ventral aspect of the fetus. The right hand is used when the fetal back is to the right and left hand when the fetal back is to the left. The upper (anterior) foot is grasped as follows: the thumb is placed on the shin so that the nail phalanx is located in the popliteal fossa, and the other four fingers on the anterior surface of the leg (Figure 22 a).

The downward traction should then be applied to the leg. To enhance traction, you can help yourself with your second hand, grabbing the hand holding the leg. As soon as it becomes possible, the leg may be grasped by both hands; the second hand grabs the leg above the first hand by the same technique, as in case the first hand did. It is desirable that the knee should

also be grasped to prevent its strain during traction.

As the leg appears from the birth canal, the operator's both hands should move farther along the infant leg toward the pudendal cleft.

When doing traction, pay attention so that the fetus turns with its back anterior (knee posterior). The downward traction should be continued until the forthcoming buttock and the iliac bone are brought beneath the symphysis.

In double footling presentation the fetus is extracted by both hands by both legs.

As soon as the anterior buttock will appear below the symphysis pubis and iliac bone fixes below the symphysis pubis, the forthcoming thigh is then grasped by both hands and lifted energetically to cause lateral flexion of the fetal body. Is thus flexed and the aftercoming buttock is delivered over the perineum (Figure 22 b).

After the second buttock has been delivered, the hands should grasp the thighs with thumbs along the sacrum. The other fingers should grasp the upper thighs (Figure 22 c). With the hands thus gripped on the buttocks, the operator continues the downward traction (but along a more horizontal axis) till the fetus is extracted to the level of the umbilicus.

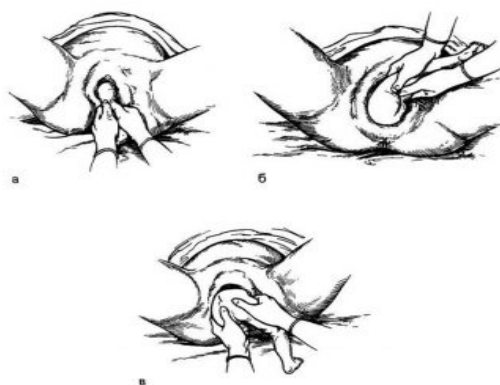


Figure 22. Extraction of the fetus by the leg

a– grasp of the shin; b – buttock are brought beneath the symphysis;

c – grasping the fetus after the delivery of the buttocks

The second step – the fetus is extracted until the tip of the scapula.

After the fetus is extracted till the navel, the trunk is rotated to the anterior-posterior diameter of the true pelvis exit, simultaneously maintaining a downward traction – until the tip of the scapula will be delivered.

The obstetrician's hands are in the same position.

The arms deliver maneuver should start only when the inferior angle of the anterior scapula is visible underneath the pubic arch.

The third step – the arms and the head are delivered by maneuvers as

specified for manual breech extraction.

Extraction of the fetus by the groin (if frank breech presentation)

Purpose: the urgent delivery in the second stage of labor because of a threat to the mother's or fetus' wellbeing (somatic diseases or complications of pregnancy requiring urgent termination of labor; acute asphyxia of the fetus).

Equipment: Rakhmanov's bed, sterile aural forceps or tweezers, sterile gloves, drapes, gauze pieces, antiseptic solution.

The position of the patient: the mother is lying on her back on Rachmanov's bed with her hips and knees are fully flexed, the legs abducted and raised and the feet resting in raised stirrups. Rachmanov's bed is covered with a sterile drape.

Preliminaries:

A practitioner puts on the cap and mask, performs hand hygiene, puts on sterile gloves.

Place a sterile drape under the woman in labor.

Treat the vulva, inner thighs and perineum with antiseptics using a gauze piece.

Intravenous general anesthesia is required. Episiotomy is justified.

As the baby emerges, a warm towel should be wrapped around the body.

The breech is at or above the level of ischial spines, or in the pelvic cavity.

Stages of the manipulation.

The first step – Grasping and delivery of fetus to the level of the umbilicus.

The labia are parted with the thumb and the index finger of the left hand.

A hand is passed into the vagina.

The index finger is placed into the groin fold of the anterior-side leg of fetus. The finger should be bent as a hook (Figure **23a**).

Traction (along with uterine contraction) is exerted downward more toward the trunk than toward the femur (risk of fracture femur).

In order to add to the traction effort, the other hand should assist by grasping the wrist of the operating hand. (Figure **23b**).

When the anterior iliac bone is brought beneath the symphysis, the index finger of the other hand should now be inserted into the other groin. Traction can also be applied to both groins by the fingers of the two hands.

The direction of traction should be changed to the upward one. The

fetal torso is flexed and the posterior buttock firstly then anterior one is delivered. Then the legs slip out too.

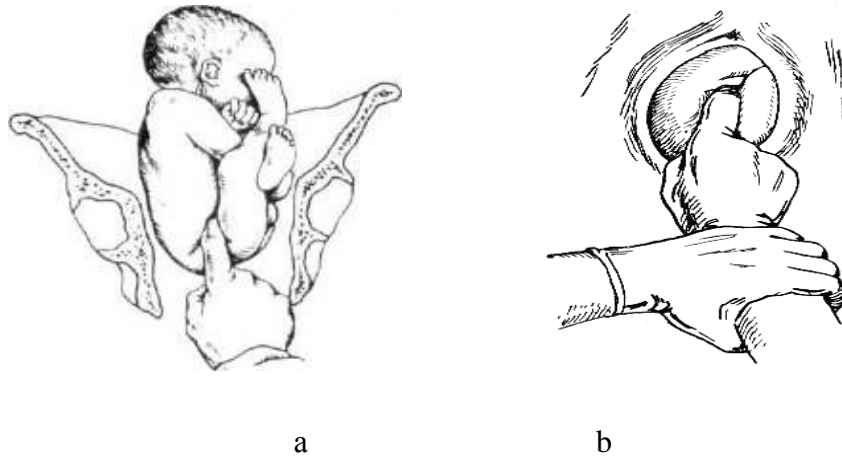


Figure 23 Extraction of the fetus by the groin

After the second buttock and both legs have been delivered, the hands should grasp the both thighs. For this the thumbs being positioned on the sacrum, the other fingers should grasp the upper thigh of fetus. Continue the downward traction (but along a more horizontal axis) till the navel is delivered.

Traction is only applied when the uterus contracts.

The second step – the fetus is extracted until the tip of the scapulas.

After the fetus is extracted till the navel, the trunk is rotated to the anterior-posterior diameter of the true pelvis exit, simultaneously maintaining a downward traction – until the tip of the scapula will be delivered.

The obstetrician's hands are in the same position.

The arms deliver maneuver should start only when the inferior angle of the anterior scapula is visible underneath the pubic arch.

The third step – the arms and the head are delivered by maneuvers' as specified for Delivery of arms and of the after-coming head (classical maneuver)

VENTOUSE

Purpose: to help guide the baby out of the birth canal. if labor isn't progressing or if the baby's health depends on an immediate delivery in cases where the time for cesarean section has already passed, and for obstetric forceps has not yet come.

Equipment: The Obstetric Vacuum Extractor (Figure 24), Rakhmanov's bed, sterile gloves; sterile drapes, sponge holding forceps or tweezers, sterile gauze pieces, bladder catheter, antiseptic solution.

The position of the patient: the woman is lying on her back on the Rakhmanov's bed in lithotomy position; under the woman is a sterile drape.

Preliminaries

The instrument should be assembled and the vacuum is tested prior to its application. The outside of the vacuum cup is smeared with obstetric cream or lubricant to facilitate insertion.



Figure 24 Vacuum Extractor

To empty the bladder with the catheter.

The obstetrician carry out hands hygiene, puts on sterile gloves.

Treat the vulva, inner thighs and perineum with antiseptics using a gauze pieces.

Just before starting the operation, vaginal examination is to be done to note and to ensure the conditions for the procedure are there and to determine the relation of fetal head to pelvic planes, the leading point, molding and size of caput succedaneum, the pelvic shape.

Stages of the operation

The perineum is gently retracted with two fingers to form a space into which a cup is inserted with the other hand (Figure 25a).

The cup is introduced into the vagina and placed against the fetal head nearer the occiput (leading point), but in no case on a small fontanel! (Figure 25b).



Figure 25. Application of vacuum extractor.

The distance to the back corner of the large fontanel from the edge of the cup should be at least 3 cm. The sagittal suture should be under the center of the cup (Figure 26).

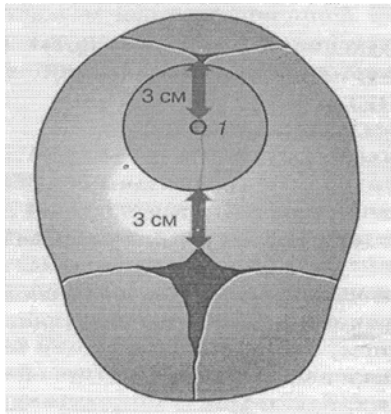


Figure 26. The point ventouse cup should be placed

A vacuum of 450-600 mm Hg (green area of the vacuum indicator scale) is induced by the manual pump slowly.

A check is made using the fingers round the cup to ensure that no cervical or vaginal tissue is trapped inside the cup.

Traction should be made using one hand, the fingers of the other hand are to be placed against the cup to note the correct angle of traction and advancement of the head. Traction should be synchronous with the contractions. Traction should be made along the axis of the birth canal and in accordance with the biomechanism of labor (anterior or posterior view of occiput presentation)(Figure 27).



Figure 27 Hand position at vacuum aspiration

- if it is anterior view of the occipital presentation, the fetal head in the cavity or midpelvic plane of the pelvic cavity – downwards to bring the suboccipital fossa of the fetal head to the lower edge of the symphysis and then directed horizontally straight towards the operator till the head is almost crowned. The direction of pull is gradually changed to upwards and forwards, towards the mother's abdomen to deliver the head by extension.
- if it is anterior view of the occipital presentation, the fetal head is at the exit plane – horizontally straight to the operator till the head is crowned (the posterior cranial fossa is brought to the pubic arch), then upwards and forwards.
- if it is posterior view of the occipital presentation (Posterior fontanel is felt near the sacroiliac joint) the fetal head in the cavity or midpelvic plane of the pelvic cavity – downwards until the hairline comes to the lower edge of the symphysis. Then the pull is directed horizontally straight to the operator to bring the posterior cranial fossa of the fetal head to the coccyx, then downwards and backwards, for birth from under the pubic joint of the forehead and face of the fetus.

As soon as the head is delivered, the vacuum is reduced by opening the screw-release valve and cup is then detached.

The delivery is then completed in the normal way.

OBSTETRIC FORCEPS

Forceps operations are of two kinds: outlet forceps and low (cavity, mid) forceps, depending on the fetal head position in the pelvis

Purpose: emergent delivery in the second stage of labor because of a threat to the mother's or fetus' wellbeing

Equipment: Obstetric forceps (Simpson's forceps), Rakhmanov's bed, sterile gloves; two sterile drapes, sponge holding forceps or tweezers, sterile gauze pieces, bladder catheter, antiseptic solution.

The position of the patient: the woman is lying on her back on the Rakhmanov's bed in lithotomy position; under the woman is a sterile drape.

Preliminaries

To empty the bladder with the catheter.

Intravenous general anesthesia is required

The obstetrician carry out hands hygiene, puts on sterile gloves.

Place the closed forceps on the sterile table with the tips pointing up.

Treat the vulva, inner thighs and perineum with antiseptics using a gauze pieces.

Just before starting the operation, digital vaginal examination is to be done: the operator must be certain of the position of the head.

Outlet forceps application

Forceps is applied on the transverse diameter of the pelvis

The fetal position

Be sure, the fetal head has reached the perineal floor (is on the perineum or even visible at the introitus), with its sagittal suture in anteroposterior outlet diameter (anterior fontanel is felt anteriorly).

Stages of the operation. The procedure consists of five main steps:

1 step. Applying the blades.

Identification of the blades - the first blade to be applied is the left blade always. Use the «rule of tree»: the left blade is taken by the left hand, applied into the left side of maternal pelvis.

Applying the left blade.

- The labia are parted with the thumb and the index finger of the left hand.

- The right half-hand, that is, four fingers of the hand, except for the first one, is inserted into the vagina, along the left lateral vaginal wall between the head and left lateral vaginal wall, the palmar surface should face

the head. The right thumb remains outside. The fingers are used to guide the blade during application and to protect the vaginal wall.

After inserting the half-hand one begins applying the blade.

The handle of left blade is taken lightly by left index, middle and thumb in a pen-holding manner or a fiddlestick-holding manner.

The handle of the left blade positioned above the maternal right groin and parallel to the right inguinal ligament.

The fenestrated portion of the blade (the tip of the blade) is placed on the palm of the right half-hand inserted into the vagina against the lower part of the right thumb. The right thumb is placed at the lower part of the applying blade.

With a gentle motion, the left hand describes an arc through the air, introducing the tip of the blade along the right palm which is used to retract away the vaginal wall (Figure 28).



Figure 28 Introducing of the left blade

The blade is introduced between the guiding internal fingers and the fetal head, manipulated by the thumb. As the blade is pushed up and up, the handle is carried downwards until the handle is to lie in a horizontally position (transverse diameter of the pelvis).

Utmost gentleness is required while introducing the blade. The blade should slip inside the birth canal under the impact of its own weight. The blade is guarded between the index and middle fingers of the internal half-hand. The half-hand inserted into the vagina acts as a guide; it controls the accurate direction and position of the blade. When correctly applied, the blade should be over the parietal eminence (biparietally).

Using this half-hand the obstetrician ensures that the blade's toe is not aimed at the fornix or lateral vaginal wall and does not graze the edge of cervix. After checking the position of the blade, the right hand is removed from the vagina.

Pass the handle to assistant to hold it in the achieved position.

The assistant's hand should be under the woman's hip.

Applying the right blade.

The right blade is introduced in the same manner as the left one, but holding it with the right hand. *NB: The any blade is inserted observing the «rule of tree»: the left blade is taken by the left hand, applied on the left side of maternal pelvis; the right blade is taken by the right hand, applied on the right side of maternal pelvis.*

The four fingers of the left hand are now introduced into the right lateral wall of the vagina alongside the baby's head.

Now, slide the right blade gently between the head and fingers inside the vagina manipulated by thumb to the right lateral vaginal wall so that it rests on the side of fetal head in front of left ear of the fetus (Figure 29).



Figure 29 Introducing of the right blade

Making sure that the right blade is correctly applied, the left hand is removed from the vagina. When correctly applied the blades should be over the parietal eminence (the biparietal placement).

2 step. Locking of the blades.

Depress the handles and lock the blades (Figure 30a).

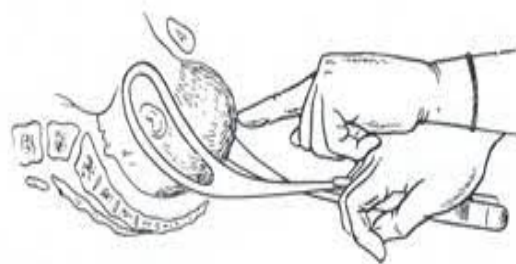
When correctly applied (biparietal placement), the blades should be locked with ease. The handles should never be forced to lock them. Difficulty in locking usually indicates that the application is incorrect. If one blade is deeper in the vagina, it can be pulled out. In case of major difficulty, remove the forceps; recheck the position and reapply.

3 step. Trial traction.

Before traction is applied, correct application of the blades is to be insured.



a



b

Figure 30: a – Locking of the blades; b – Trial traction.

When the forceps is locked, trial traction should be attempted to see that the blades do not slip. To that end, the handles are grasped by the right hand. The left hand is placed over the right one with the index finger touched

the fetal head (Figure 30b). Start to pull the head and check if the forceps is applied correctly, the head will move together with the forceps and the index finger remains in contact with the head. If the forceps slips (incorrectly applied forceps) a gap forms between the finger and the head (the forceps moves from the vagina, while the head remains in its initial position). The blades are to be removed and reinserted.

4 step. Traction proper.

Make a large episiotomy before starting tractions.

Principles: Steady but intermittent traction should be given if possible during contraction. Strong traction is not need as the only resistance to overcome is the perineum and the coccyx. Try to synchronize tractions with uterine contractions thus augmenting the natural expelling force. Imitate the force of the contraction: never start the traction abruptly, but with a slight pull, increasing and decreasing the strength gradually.

Gripping of the articulated forceps during traction: the traction is given by gripping the handle, placing the middle finger in between the shanks with the ring and index fingers over the Busch's hooks. The left hand helps the right one from above or below (Figure 31).

Direction of the pull:

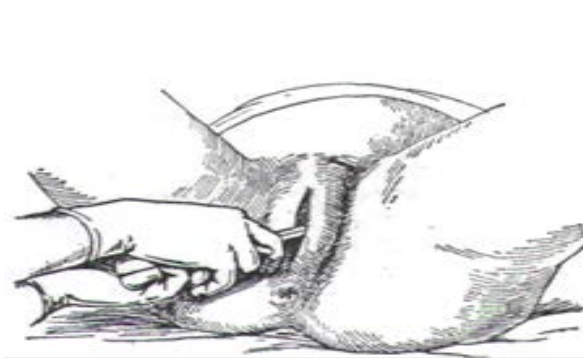


Figure 31. Gripping the handle of the forceps in traction proper.

The direction of the pull corresponds to the axis of the birth canal (Figure 32) – in outlet forceps is horizontally straight to the operator till the head is crowned (the posterior cranial fossa is brought to the pubic arch).

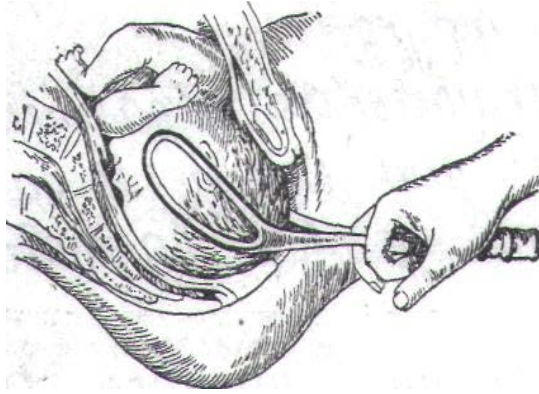


Figure 32. Traction in outlet forceps

Extraction of the head.

During the final stage of traction, as the head crowns, the obstetrician should assume the position at the side of the parturient, grasp the handles with the right hand and pull the head upwards (Figure 33). The left hand being used to protect the perineum from possible lacerations. While the handles of the forceps rise, the direction of pull is upwards and forwards, towards the mother's abdomen to deliver the head by extension.

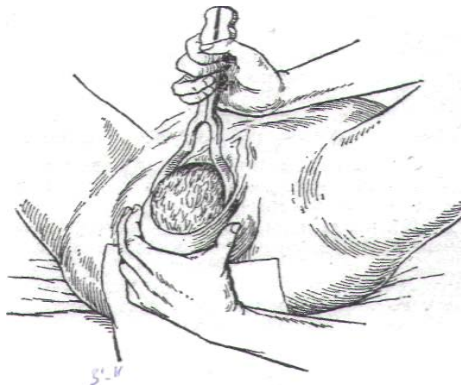


Figure 33 Extraction of the head.

5 step. Removal of blades.

Time for removing: the forceps may be removed when the head is crowning or after the delivery of the head. The blades are removed one after another, right one is removed first.

The sequence of removal the forceps when the head is crowning is as follows: take the right handle by the right hand, the left handle – by the left hand and unlock the forceps by drawing the hands apart. Remove the right

blade first, describing an arc through the air directing to the right inguinal ligament.

Episiotomy is repaired in the usual method. Lacerations of the vaginal walls or perineum are to be excluded.

LOW (MID, CAVITY) FORCEPS

The fetal position

Is applied if the leading part of the head is below the level of the ischial spines, but the fetal head has not reached the perineal floor.

The sagittal suture occupies one of the oblique pelvic diameters. **Forceps is applied on the opposite oblique diameter of the pelvis.** Posterior fontanel is felt near the iliopubicum joint. – The anterior view of the vertex presentation, the first position.

Low forceps application on the left oblique diameter of the pelvis – the sagittal suture occupies right oblique diameter, the wandering blade – right (Figure 34).

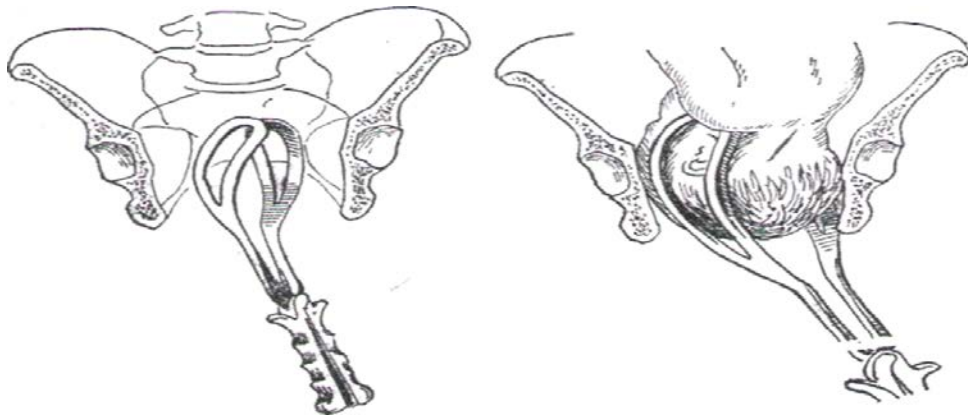


Figure 34. Low forceps.

The anterior view of the vertex presentation, the first position. The sagittal suture occupies right oblique diameter – forceps applied on the left oblique diameter of the pelvis.

The procedure consists of the same five main steps:

1 step. Applying the blades.

Identification of the blades - The first blade to be applied is the left blade.

Applying the left blade.

The labia are parted with the thumb and the index finger of the left hand.

The right half-hand is inserted into the vagina the same manner, as has been described, BUT along the left-posterior lateral vaginal wall (not lateral).

The handle of left blade is taken and introduced by the same, as in case of outlet forceps, only not on transverse, but **on the left oblique diameter of the pelvis (where is right half-hand is inserted)**.

Pass the handle to assistant to hold it in the achieved position so as to avoid shifting it.

The left half-hand is inserted into the vagina the same manner, as has been described. The handle of the right blade is taken and introduced by the same technique, as in case of outlet forceps – it means laterally, on transverse diameter. At once then the right blade should be gently moved up round the head take the position of the oblique diameter of the pelvis in order to lie on *the head* biparietally (“**wandering blade**”). With that the handle turns down, being occupied the left oblique diameter of the pelvis.

When correctly applied the blades should be over the parietal eminence (the biparietal placement).

Making sure that the right blade is correctly applied, the left hand is removed from the vagina.

2 step (Locking of the blades) and **3 step** (Trial traction) is performs by the same technique as in case of outlet forceps.

4 step. *Direction of the pull:* according to the direction of the axis of the birth canal the direction of pull is downwards until the head comes to the perineum. Then the pull is gradually changed directed horizontally straight to the operator till the head is crowned (the posterior cranial fossa is brought to the pubic arch), then upwards and forwards, towards the mother’s abdomen to deliver the head by extension.

Traction proper is performed the same method and with the same principles as in outlet forceps.

One should remember that forceps are a tractive instrument; tractions should be executed smoothly in a certain direction. No oscillating, rotating or pendular movements must ever be made.

Extraction of the head – the same as in outlet forceps.

5 step. Removal of blades – *the same as in outlet forceps.*

Low forceps application on the right oblique diameter of the pelvis – the sagittal suture occupies left oblique diameter, the “wandering” blade – left.

The procedure consists of the same five main steps:

1 step. Applying the blades.

Applying the left blade.

The labia are parted with the thumb and the index finger of the left hand.

The right half-hand is inserted into the vagina the same manner, as has been described. The handle of left blade is taken and introduced firstly by the same technique, as in case of outlet forceps – it means laterally, on transverse diameter. At once then it should be gently moved up round the head take the position of the oblique diameter of the pelvis in order to lie on *the head* biparietally (“**wandering blade**”). With that the handle goes to the right oblique diameter of the pelvis too.

Making sure that the left blade is correctly applied, the right hand is removed from the vagina.

Pass the handle to assistant to fix it strictly in the achieved position.

The left half-hand is inserted into the vagina the same manner, as in outlet forceps, but along not lateral, but the left-posterior lateral vaginal wall. The handle of the right blade is taken and introduced by the same technique, as in case of outlet forceps, only not on transverse, but on the low part of **the right oblique diameter** of the pelvis, along the left half-hand. With that the handle occupies the right oblique diameter of the pelvis, meeting with the left handle.

Making sure that the right blade is correctly applied, the left hand is removed from the vagina. When correctly applied the blades should be over the parietal eminence (the biparietal placement).

All next steps are performed by the same technique, as in case of the previous low forceps, with the same direction of the pull – downward, horizontally and upwards.

Episiotomy is repaired in the usual method. Lacerations of the vaginal walls or perineum are to be excluded.

GYNECOLOGY

The speculum examination of the cervix and the vagina

Objective: To reveal the cervical and vaginal pathology.

Equipment: a gynecological chair; a sterile Sims' posterior vaginal speculum and vaginal wall retractor or a bivalve (Cusco's) vaginal speculum (Figure 35); sterile gloves, sponge holding forceps and swabs, sterile lubricant (preferably colorless without any antiseptics), good light source.

Preliminaries: The patient must empty her bladder prior to examination. Then she is asked to lie supine on the gynecological chair covered with a sterile drape. Ask the patient to place her feet in the stirrups and to slide down so that her perineum reaches the edge of the examination table. Ask the patient to relax her legs, and let her knees fall to the sides as much as possible.

The cervix and the vagina are inspected with the help of good light source placed behind.

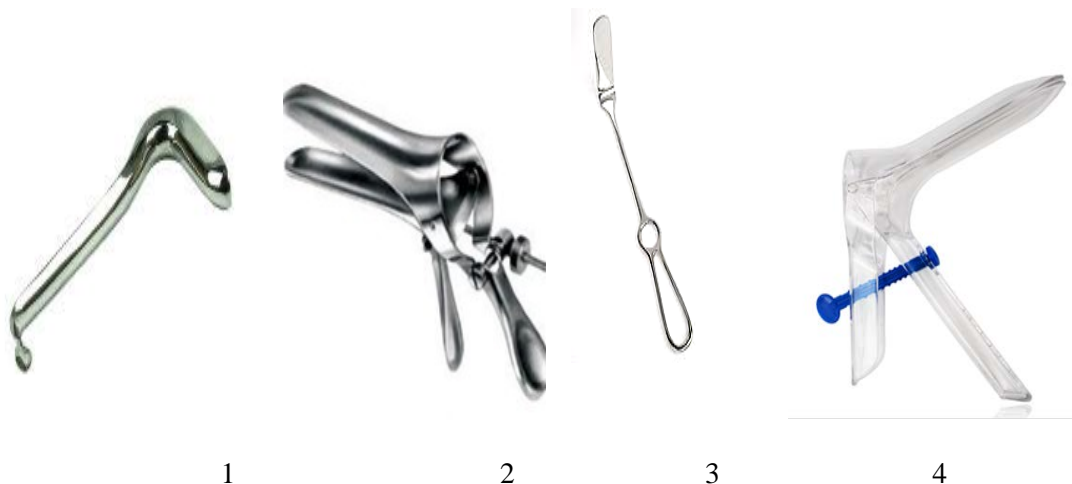


Figure 35. Gynecological specula: 2, 4 – a bivalve speculum (Cusco's); 1 – Sims' posterior vaginal speculum; 3 – vaginal wall retractor

Steps of the procedure

The labia are parted with the thumb and the index finger of the left hand, so that the pink vaginal mucous can be seen.

Apply warm water or warm lubricant gel to the outside of the blades of the speculum. Use the speculum size that is comfortable to the patient.

1. One can use a bivalve speculum. The transverse diameter of the closed blades are placed in the anteroposterior position and inserted through the introitus slightly obliquely to minimize pressure on the urethra. Once the speculum is gently introduced, the handle is turned downwards (Figure 36),

and the blades are slowly opened allowing visualization of the cervix and vaginal walls. Then the blades are fixed in place by tightening the locking screw.

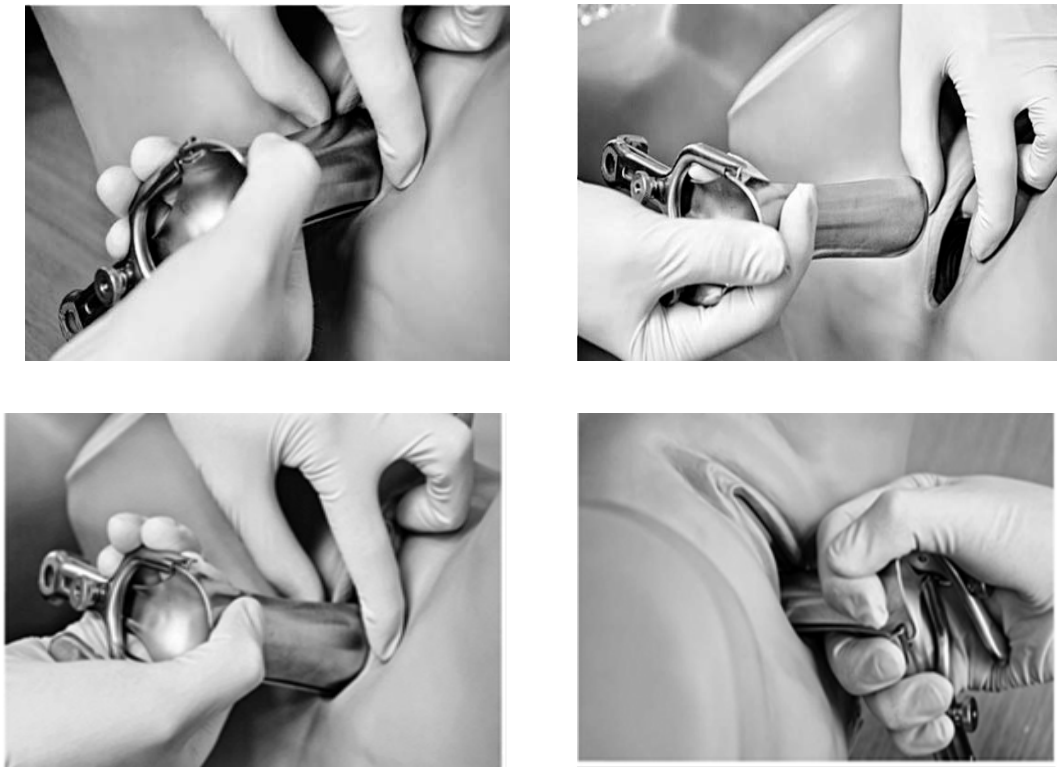


Figure 36. Steps of the inserting of the bivalve speculum (Cusco's)

Inspect the **cervix** (Figure 37): determine its shape, position, magnitude, shape of the external os, a color of mucous, any abnormalities such as ectropion, polyps, tears and so on and the character of the cervical discharge.

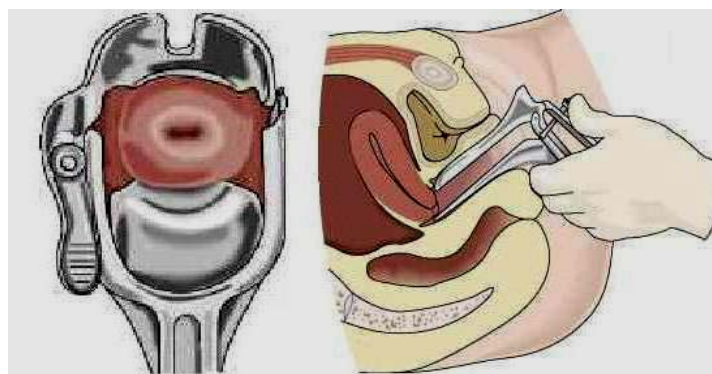


Figure 37 Inspection the cervix with the speculum (bivalve speculum)

Inspect the vaginal walls when removing the speculum (color of the mucous, ulcers, warts and tumors, congenital or acquired anatomical changes).

Remove the vaginal speculum from the vagina after examination and place them into a container with disinfectant.

2. Introduce a posterior vaginal speculum keeping it in oblique almost vertical position. After the speculum is gently introduced rotate it to the horizontal plane and pull it slightly down pressing on the posterior wall of the vagina.

Insert the vaginal wall retractor by the same technique, as in case of posterior vaginal speculum; rotate it and lift the anterior vaginal wall to visualize cervix (Figure 38).

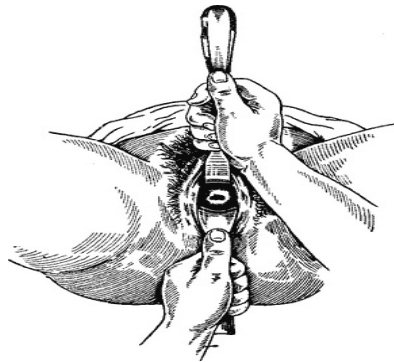


Figure 38. Inspection the cervix with the Sims' speculum

THE BIMANUAL VAGINAL-ABDOMINAL (THE PELVIC) EXAMINATION

Purpose: examination of the external and internal female pelvic organs.

Equipment: a gynecological chair; sterile gloves; drape, lubricant.

Preliminaries: the woman is asked to lie on a gynecological chair covered with a sterile drape in a dorsal position with her knees apart (lithotomy position).

Stages of performing the manipulation

External genitalia examined without lesions or abnormalities.

The labia are parted with the thumb and the index finger of the one hand. The character of the vaginal discharge, if any, is noted. Presence of cystocele or uterine prolapse or rectocele is to be elicited.

- The second and third fingers of the dominant hand should be lubricated, and then be introduced into the vagina, passing along the posterior wall until the cervix is felt (Figure 39).

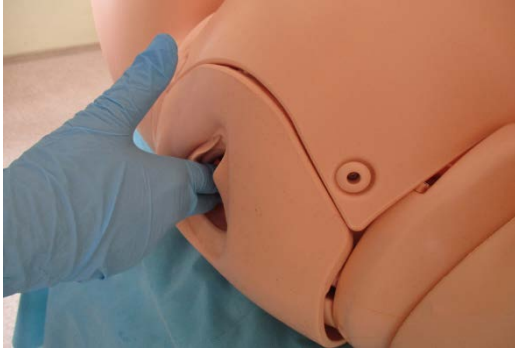


Figure 39. Introducing of the fingers into the vagina

The dominant hand is the “manipulating” hand, whilst the fingers of the other hand, placed on the abdomen is the “palpating” hand.

Gentle and systematic examinations are to be done to note: Vagina, Cervix, Uterus and its adnexa, pelvic walls.

- Examine the vaginal walls and determine any abnormalities such as warts, tumors, congenital or acquired anatomical changes, scars, narrowing, the state of the vaginal fornices (flattening, painfulness, indurate cellular tissue).

- Exam the cervix: determine its shape, consistency, mobility. The cervix can be classified into “firm” – normal, “soft” during pregnancy, “hard” if it is infiltrated by carcinoma.

- For the bimanual palpation of the uterus the fingers of the left hand should be placed on the patient’s lower abdomen. The second and third fingers of the right hand moved to the anterior fornix of the vagina (Figure 40). Palpating the uterus between the fingers of the hands examine the position, shape, size, consistency, mobility and painfulness. If the uterus is retroverted, it may be palpated putting the fingers of the inner hand into the posterior vaginal fornix.

If the uterus is enlarged, it is most logical to describe it as equivalent to the number of weeks of pregnancy

To determine the status of the adnexa of the uterus, the fingers of the external hand should be moved to the iliac region (Figure 41), and the fingers of the inner hand to the lateral vaginal fornix. Exam the magnitude, shape, tenderness, mobility of the enlarged ovaries and fallopian tubes. Normally adnexa are not palpable.

- Palpate the pelvic walls with the fingers of the inner hand.
 - Remove the fingers of the inner hand from the vagina; check carefully the presence and character of discharge.
 - Take off the gloves and place them in a container with disinfectant.
- Help the woman get into an upright position.



Figure 40 Bimanual (digital) palpation of the uterus



Figure 41 Bimanual (digital) palpation of the of the adnexa of the uterus

An example of a description of a vaginal test (a multiparous woman)
The vaginal walls are normal. Vaginal fornices are without flattening, indurate or tenderness. Cervix has tubular shape; external os is slit-shaped and closed. The uterine body is in anteversio-anteflexio position, it is dense, mobile, painless, the size is normal. Both adnexa are without masses or tenderness. Discharge is scanty light whites without smell.

INSPECTION AND PALPATION OF THE BREASTS

Purpose: to determine if the breasts are normal or abnormal

Conditions: when a regular menstrual cycle the study is preferable to perform from the 5th to the 12th day of the menstrual cycle, in menopause - at any day.

Steps of the procedure

1. The examination of the mammary glands is performed in the orthostatic position and bending forward slightly with the arms crossed at the back of the head, then with the arms raised above the head, and also in the lying position (Figure 42). To examine the external segments of the mammary glands, the patient is asked to turn the body for 10-15 degrees in the opposite direction.

During examination one should pay attention to:

- size, symmetry and shapes of the mammary glands;
- skin condition;
- position, size and shapes of the nipples and areoles;
- pathological discharge from the nipples.

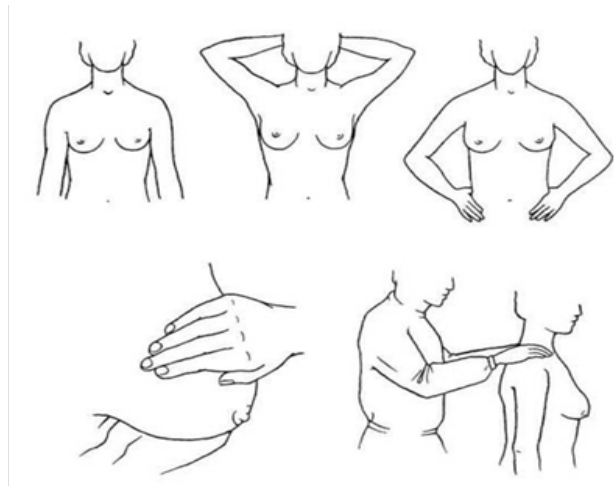


Figure 42 Inspection and palpation of the breasts, subclavicular and supraclavicular lymph nodes

2. Palpation of the mammary glands.

Palpation of mammary glands is performed in the orthostatic position at the position of the patient's hands on the waist, on the back of the neck, on the shoulder of the doctor standing opposite.

With expressed ptosis and hypertrophy, the mammary gland is supported with one hand of the examiner, while palpating by the dominant hand (Figure 43);



Figure 43. Palpation of the nipple

- in the lying position: the patient lies on her back and puts her hands behind the head, turning slightly to one, and then the other side.

Stage 1: superficial palpation of the both mammary glands performed with the entire palm in the direction from the periphery to the center.

Stage 2: deep palpation begins with the uppermost quadrants in a clockwise direction for the left and anticlockwise for the right gland. For palpation, place the hand on the mammary gland flat to palpate the gland with the nail and middle finger phalanges (palpation with fingertips is a mistake).

Stage 3: palpation of the nipples. Palpate nipple for elasticity and at the end of the palpation, gently squeeze the nipple to note for discharge

Palpate axillary, subclavian and supraclavicular lymph nodes in series on both sides.

TO TAKE A SMEAR FROM URETHRA, CERVICAL CANAL, VAGINA FOR BACTERIOSCOPICAL EXAMINATION

Purpose: to identify or exclude an inflammation in the vagina, cervix or uterus.

Equipment: a gynecological chair; light source, bivalve vaginal speculum, spatula, Volkmann spoon curette, dressing forceps or tweezers, gloves; drape, sterile gauze swabs, glass slide, marker for glass, non-sterile gloves, a container with disinfectant.

Preliminaries: the woman is on a gynecological chair covered with a sterile drape with her thighs abducted and her feet placed in the stirrups. Prepare the glass: divide it in two parts signing with “U” and “C” letters (Figure 44).. Put on gloves.



Figure 44 Glass slide labeled

For a smear from the vagina, the glass slide is not divided into two parts, but is marked by the letter “V” (vagina).

Put on gloves. Open the sterile package and take a vaginal speculum, a Volkmann spoon curette or a spatula (Figure 45).

Steps of the procedure

Smear from the urethra:

- The large and small labia are parted with the thumb and the index finger of the one hand.

- Insert the index finger of the other hand into the vagina and massage the urethra through the anterior vaginal wall (Figure 46).

Remove the finger from the vagina and dry the urethra by a gauze swabs

- Put the used swabs in a container with disinfectant.
- Insert one end of the Folkmann’s spoon into the urethra to a depth of 0.5-1 cm, take a scraped material and apply it on the glass with a thin layer under the label "U" (urethra).



Figure 45. Volkmann spoon curette and a spatula



Figure 46. Visualization of the urethra and massage of it before taking the smear

Smear from the cervical canal:

- Insert speculum to visualize the cervix. Fix the blades by tightening the locking screw.

Clean the cervix with a sterile gauze swab held by forceps. Put the used swab in a container with disinfectant.

Look for warts, lesions, erosions, or leukoplakia on the cervix.

- Insert the unused end of Volkmann spoon into the cervical canal to a depth of 1.5-2 cm, take material using scraping movement (Figure 47a) and apply the discharge as a thin layer under the "C" (cervix) label on the glass.

Remove the speculum from the vagina and place it in a container with disinfectant

Smear from the vagina:

- Insert a warm vaginal speculum; fix the blades by tightening the locking screw.

Use a spatula to take the contents from the posterior vaginal fornix. Use cotton swab to take sample of discharge from lateral vaginal walls (Figure 47b).

- Apply the obtained material on the glass with a thin layer and sign the glass by "V" letter (vagina).

- Remove the speculum from the vagina and place it in a container with disinfectant

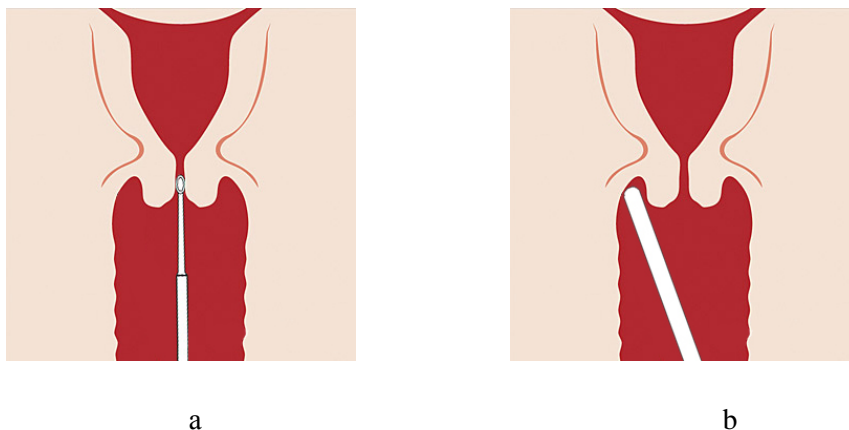


Figure 47. Smear from the cervical canal (a) and vagina (b)

Take off the gloves and place it in a container with disinfectant.

ONCOCYTOLOGICAL SMEAR TESTS (PAP SMEAR, PAPANICOLAOU SMEAR; CERVICAL SMEAR; CERVICAL ONCOCYTOLOGY)

Objective: screening for the early detection of cervical neoplasia and cancer.

Equipment: gynecological chair, Light source, Bivalve vaginal speculum, dressing forceps or tweezers, non-sterile gloves; drape, sterile gauze swabs, extended-tip spatula (Ayre's spatula) plus an endocervical brush (Cytobrush), or a Cytobroom, a glass slide labeled with the patient's name (a slide with a frosted label space on one end is preferred), a pencil for glass, a container with disinfectant.

Preliminaries: The patient must empty her bladder prior to examination. Then she is asked to lie supine on the gynecological chair covered with a sterile drape. Ask the patient to place her feet in the stirrups and to slide down so that her perineum reaches the edge of the examination table. Ask the patient to relax her legs, and let her knees fall to the sides as much as possible.

Prepare a glass slide.

Put on gloves. Open the sterile dispensable package and take the speculums, Ayre's spatula and cytobrushes in the presence of the patient.

Conditions: Cytological smear can not be taken: during menstruation, with inflammation of the genitalia, within 48 hours after sexual intercourse, after douching, vaginal/ultrasound examination, colposcopy, use of tampons, birth control foams, or other vaginal medications for 48 hours prior to the test.

For the cytological examination, the material is taken from the surface of the ectocervix adjacent to the transformation zone, the endocervix, and the cervical transformation zone (T-zone), using the endocervical cytobrush, Ayre's spatula or Cytobroom (Figure 48, 49).



Figure 48 Collection Instruments for oncocytological smear test: Ayre's spatula



Figure 49 – Cytobrush and Cytobroom.

Steps of the procedure

The cervix is exposed with a Cusco's vaginal speculum without lubricant and prior to bimanual examination. Fix the blades by tightening the locking screw.

Take with forceps a sterile gauze swab and carefully remove excess discharge from the cervix. Look for warts, lesions, erosions, or leukoplakia on the cervix.

Depending on the available devices, the PAP test can be carried out in three techniques.

The Ayre's Spatula and the Endocervical Brush using Procedure

Introduce into the cervical canal the Ayre's spatula: the narrow end if she is nullipara or the wide end if she is parous female.

Take a cellular sample by rotating in 360 degrees spatula pressed to the cervix. So, we obtain sample from both ectocervix and the T-zone (Figure 50a).

Apply the cellular sample onto the glass slide smearing with a thin smear, using about a 2 cm portion of the slide (Figure 50b).

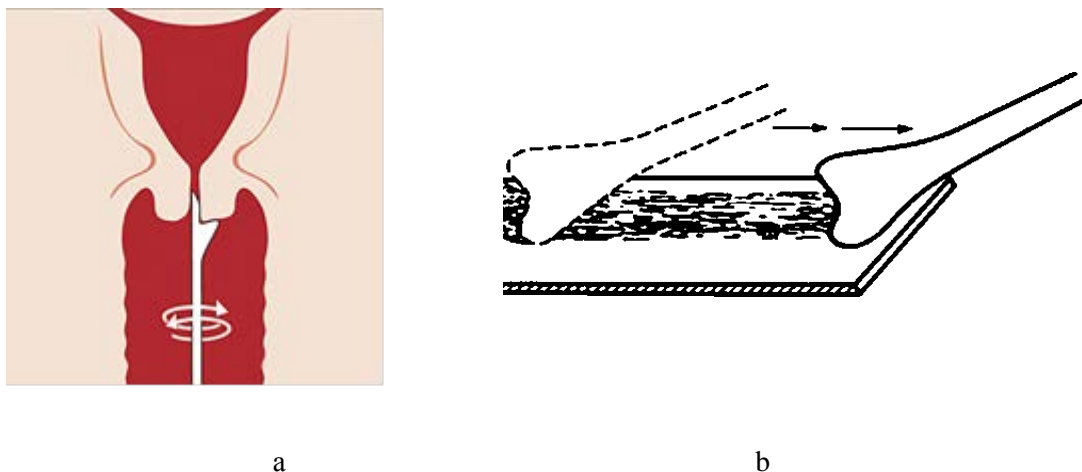
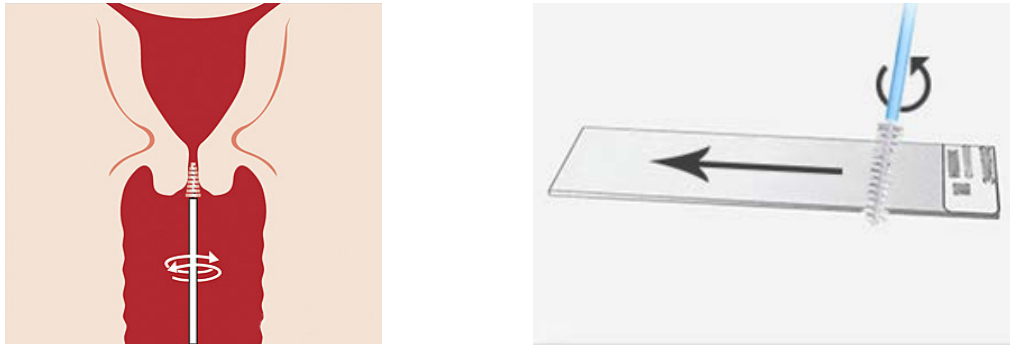


Figure 50 Smear technique by Ayre's spatula

a - Taking a cellular sample; b - applying the cellular sample onto the glass slide

To obtain cellular sample from the endocervix take the endocervical brush and insert it into the cervical canal to a depth of non less then 3 cm. Slowly rotate 2 or 3 complete turns in one direction. DO NOT OVER ROTATE. (Figure 51a). (Rotating in one direction, and then the other is not recommended because it can result in loss of cells.)

The endocervical brush sample can then be smeared on the same slide and, using a single circular motion without pressing, smearing the cellular sample onto the glass slide to get thin even smear (Figure 51b).



a – Taking a cellular sample; b - applying the cellular sample onto the glass slide

Figure 51 Smear technique by endocervical brush

PROCEDURE WHEN EMPLOYING THE TWO ENDOCERVICAL BRUSHES (CYTOBRUSHES)

Prepare two cytobrushes: one straight line and one twice bent at an angle of 90 (Figure 52).

Insert the bent brush into the cervical os so that part of the brush is on the ectocervix and part is in the endocervix. Rotate the brush 360 degrees in one direction, "collecting" the cells of the ectocervix and T-zone.

Apply the cellular sample in a thin layer onto the surface of the half-part of a glass slide. To obtain a smear, the cytobrush should be pressed firmly against the glass, first with one side, then with the other.



Figure 52.Cytobrushes

Take the endocervical brush and insert it into the cervical canal to a depth of non less then 3 cm. Slowly rotate 2 or 3 complete turns in one direction. **DO NOT OVER ROTATE** (Figure 51a).

Transfer material to the other half of the slide; to do this, roll the brush along the glass with one motion, without pressing, to get a thin uniform smear (Figure 51b).

Collection of a Specimen with the Cervical Broom Device

The long central bristles of the broom are inserted into the endocervical os while the broom is pressed against the cervix so that the outer bristles bend. The broom is then rotated in one direction for five complete rotations. (Rotating in one direction, and then the other is not recommended because it can result in loss of cells.) Then the broom sample is smeared on a slide (labeled with the patient's name) by stroking the broom

on the usable surface of the slide from the label margin toward the other end of the slide.

- Remove the speculum from the vagina, take off the gloves and place them in a container with disinfectant.
- Remove the speculum from the vagina, take off the gloves and place them in a container with disinfectant.

To take the material from the cervical canal and vagina for bacteriological examination

Purpose: to identify the causative agent of infection, to determine its sensitivity to antibiotics.

Equipment: a gynecological chair; sterile swab and test tubes with transport broth (Figure 53), vaginal speculum, dressing forceps or tweezers, gloves, drape, cotton swab; container with disinfectant.



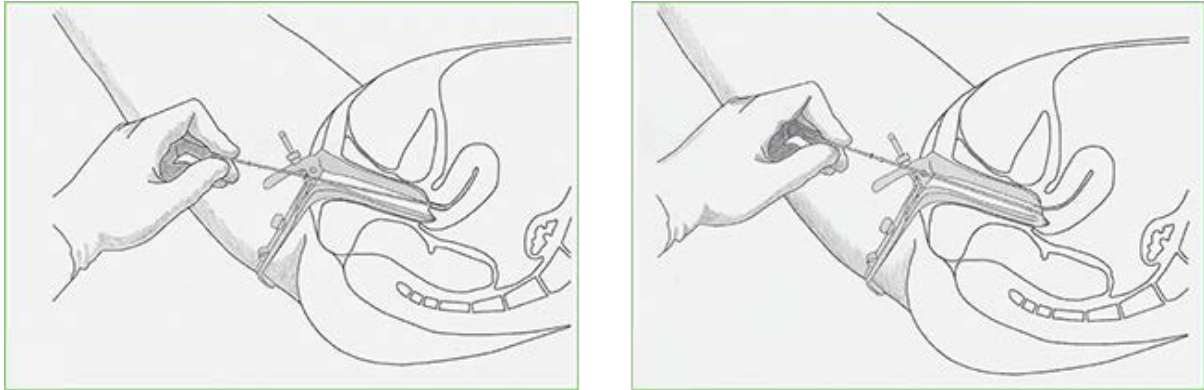
Figure 53. Test tubes with gel and coal transport broth

Preliminaries: the woman is on a gynecological chair covered with a sterile drape putting her feet in stirrups.

The main stage of performing the manipulation

- Insert a speculum into the vagina and visualize the cervix and a posterior vaginal fornix.
- Remove excessive mucus and abundant secretions with a sterile swab using tweezers or forceps.
- Open the pack with a sterile swab and a test tube with transport broth, fix the tampon in the plug of the tube.
- Insert a sterile swab into the cervical canal to a depth of 1.5-2 cm and take the material for analysis (Figure 54a).
- Place a swab with the material into the test tube with a transport broth and close the test tube tightly.

- Insert a sterile swab of the second tube into the posterior vaginal fornix and take the material by swabbing the mucus (Figure 54b).
 - Place a swab with the material into another test tube with a transport broth and close the test tube tightly.
 - Remove the speculum from the vagina, take off the gloves and place them into the container with disinfectant.
- Sign the label on the test tube. Place the tube in the thermostat or immediately deliver it to the laboratory in a special container.



a

b

Figure 54. Obtaining the material from the cervical canal (a) and vagina (b) for bacteriological examination

CERVICAL BIOPSY

Purpose: to obtain a sample of cervical tissue for histological examination.

Equipment: gynecological chair, sterile table for medical devices, Vaginal speculum, tenaculum (two) or Alley's forceps, scalpel or Tischler punch biopsy forceps, tweezers, dressing clamp, needle holder, needle/suture material, sterile gauze swabs, gloves, biopsy container with formalin, drape, antiseptics, histopathology request form.

Preliminaries: the woman is placed on a gynecological chair covered with a sterile drape in a dorsal position with the knees and thighs flexed, the thighs abducted, the feet putted in stirrups. The patient is to empty the bladder prior to operation. Topical anesthesia can be used.

Prepare a formalin container, histopathology request form.

Carry out hands hygiene, put on sterile gloves.

Set the biopsy tool kit on a sterile table

Steps of the procedure

- Treat the external genitalia with an antiseptic solution using the dressing clamp and gauze swabs, perform a draping.

Insert posterior vaginal speculum and vaginal retractor and visualize cervix, pass them to the assistant.

- Clean the cervix and upper part of the vagina with an antiseptic solution.

- Grasp the cervix with two tenacula (or Alley's forceps) so that the biopsy site is located between them. Remove the vaginal speculum-retractor.

With a scalpel, a wedge of tissues is cut from the edge of the lesion including the healthy tissue for histological study. The base of cut wedge should be outward, the top – inside the cervix (Figure 55a).

The tissue sample is taken with the tweezers and placed in a container with a fixative solution (formalin, 96% alcohol, etc.). The tweezers is placed into a container with antiseptics.

- Stop minor bleeding from the place of biopsy by applying 1-2 catgut sutures to the excision site (Figure 55b).

- Remove the tenacula.

- Clean the cervix with an antiseptic solution using the dressing clamp and sterile gauze swabs.

Remove *the speculum from the vagina*, take off gloves.

Send the cervical sample to a pathology lab for histological examination, to fill out request form for histopathological examination (indicating the passport and relevant clinical data, description of obtained material, date of taking the sample, diagnosis, surname, first and second names of the doctor).

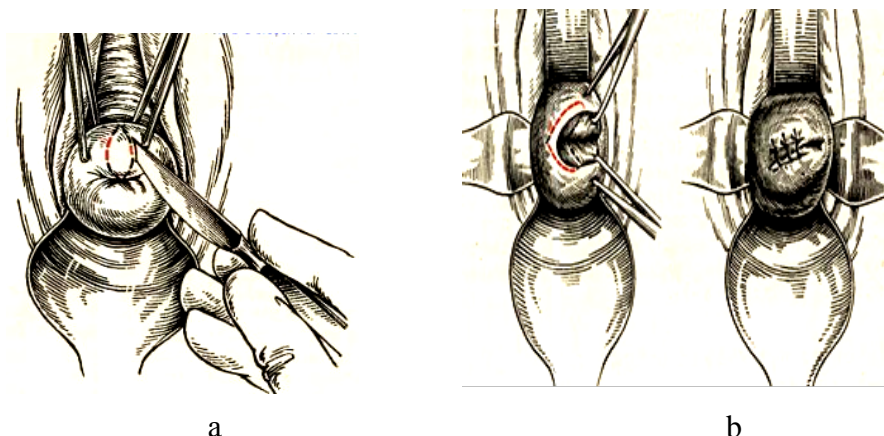


Figure 55: a – cutting of the tissue sample of the cervix; b – put stitches in the wound

CULDOCENTESIS

Purpose: to sample peritoneal fluid (blood, pus, and exudate) from the cul de sac of a female patient (pouch of Douglas) to help confirm a diagnosis.

Equipment: gynecological chair, vaginal speculum, drape, tenaculum, a puncture needle 10-12 cm long with a wide clearance and an obliquely cut end, a disposable syringe 20ml, dressing forceps, tweezers, sterile gauze swabs, tubes (including sterile for bacteriological research), a glass slide, a clean tray, antiseptic

Preliminaries: the woman is placed on a gynecological chair covered with a sterile drape in a dorsal lithotomy position with the feet in stirrups. The patient is to empty the bladder prior to operation.

Put on an apron, mask, cap, carry out hands hygiene, put on sterile gloves.

Set the culdocentesis devices kit on a sterile table. Attach a puncture needle to a 20-mL syringe.

Puncture is performed under general anesthesia

- Perform bimanual pelvic examination.

Steps of the procedure

- Treat the external genitalia with an antiseptic solution using the dressing clamp and gauze swabs, perform a draping.

Insert posterior vaginal speculum and vaginal retractor and visualize cervix, pass ones to the assistant.

- Clean the cervix and upper part of the vagina with an antiseptic solution.

Grasp the posterior lip of the cervix with the tenaculum to steady the cervix. (In patients with retroverted uterus, anterior tenaculum placement is preferred, as it helps straighten the uterus).

Remove the retractor-speculum.

With help of the tenaculum, apply forward traction on the cervix. This helps visualize the posterior fornix, stretch the vaginal mucosa and pulls the mobile uterus out of retroversion in case of a retroverted uterus.

Clean the upper part of the vagina with an antiseptic solution.

A long puncture needle fitted with a syringe is inserted through the vaginal mucosa of the posterior fornix to the pelvic cavity (Figure 56).

The needle is inserted in the midline about 1-1,5 cm inferior to the point at which the posterior vaginal wall joins the cervix (Figure 56).

When the fornix is punctured, there should be a sensation of "failure" of the needle into emptiness.

After inserting the needle to a depth of about 2 cm, pull back the syringe plunger while slowly withdrawing the needle in order to aspirate the fluid.

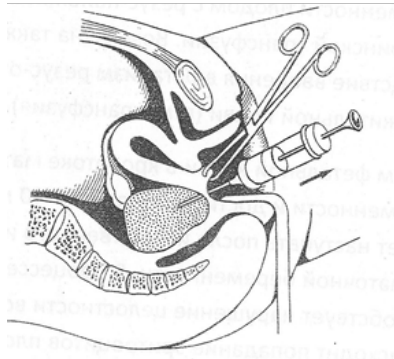


Figure 56 Puncture of the peritoneal cavity through the posterior vaginal fornix (Culdocentesis)

If no fluid is withdrawn, withdraw and redirect the tip of the needle, directing slightly to the left or right of the midline, or on the contrary withdraw the needle slowly at the same time as continuous suction should be maintained.

Remove the needle and clean the injection site with an antiseptic solution.

Remove the tenaculum and clean the cervix with an antiseptic solution.

The resulting liquid should be visualized and placed in a test tube for cytological or bacteriological examination, apply as a smear on a glass slide for bacterioscopic examination.

Remove the speculum from the vagina, take off gloves.

ENDOMETRIAL PIPELLE BIOPSY

Purpose: to obtain a sample of endometrial tissue for pathologic or fertility evaluation.

Equipment: gynecological chair, sterile table for medical devices, Vaginal speculum, Lubricating gel, tweezers, Ring Forceps, sterile gauze swabs, Sterile and non-sterile gloves, Uterine sound, single toothed tenaculum, paracervical block (if needed), cervical dilation set (if needed), Pipelle curette (Figure 57), biopsy container with formalin, drape, antiseptics, histopathology request form.

Preliminaries: the woman is placed on a gynecological chair covered with a sterile drape in a dorsal lithotomy position with the feet in stirrups. The patient is to empty the bladder prior to operation.

Put on an apron, mask and cap; carry out hands hygiene, put on sterile gloves.



Figure 57. Endometrial suction curette

- Set up the biopsy devices kit on a sterile table. Open the sterile package and remove the Pipelle curette in size 3mm and 4mm.

Prepare a formalin container, referral for histopathological examination.

Before carrying out the operation, it is necessary to perform bimanual pelvic examination to determine the size and position of the uterus.

Both the application of the tenaculum as well as the removal of tissue

by the biopsy may cause pain. Women with a lower pain threshold, and when a pipelle with a diameter of 4mm is used, can take a sedative and some simple painkillers (NSAID) two hours prior to the procedure to reduce the pain, or get a local anesthesia.

In reproductive age women, a biopsy on 20th to 26th day of the menstrual cycle would be more appropriate; in women of pre- and postmenopausal age biopsy may be performed at any time. Any women with the potential for pregnancy should have a negative pregnancy test prior to the procedure.

Steps of the procedure

- Treat the vulva, inner thighs and perineum with antiseptics using a gauze pieces.

Perform a draping.

Insert largest appropriate speculum into the vagina for maximum cervical exposure. Examine the walls of the vagina and cervix to see if they appear healthy.

Pass the vaginal retractor to the assistant.

Cleanse the cervix with antiseptic, using the ring Forceps and sterile gauze swabs.

Then grasp the cervix with a very fine forceps or a tenaculum.

A tenaculum is placed on the anterior lip of the cervix.

Remove the retractor, pass the vaginal speculum to assistant.

The uterine sound is then gently inserted to an average depth of 6 to 10 cm within the uterus until encountering resistance. Once determining the depth and the direction of the uterus, the uterine sound is removed.

Now withdraw the speculum approximately 2 cm and apply gentle traction to tenaculum to straighten any cervical curvature and to stabilize the cervix.

With the piston positioned at the extreme distal end of the sheath, the Pipelle is then inserted into and gently passed into the cavity of the uterus to a depth that corresponds to that which was determined by uterine sound.

When the sheath is in position within the uterine cavity, discontinue any traction you have applied with a tenaculum. Then, while holding the sheath in position with one hand, with the other hand rapidly pull the piston firmly and without interruption (with one swift steady motion) toward the proximal end of the sheath as far as it will go. An indentation in the wall of the sheath will prevent total withdrawal of the piston from within the sheath. This action creates a negative pressure (suction) within the sheath that draws the tissue into the curette opening at the distal end of the sheath and captures the separated tissue within its lumen (Figure 58).

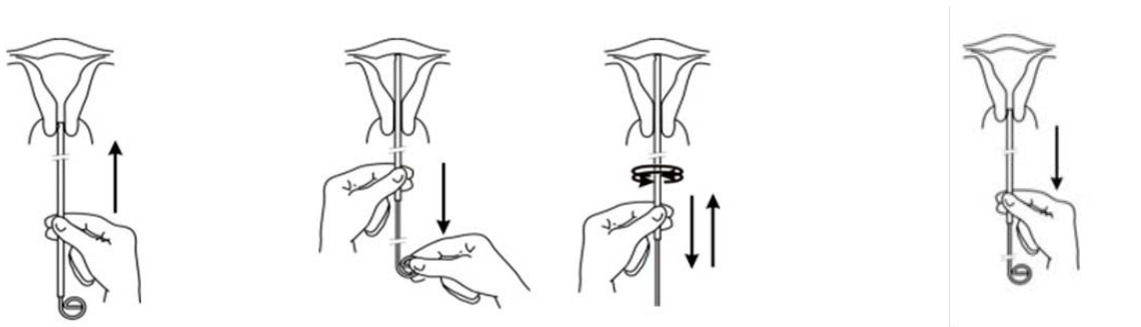


Figure 58. Steps of the aspiration biopsy of the endometrium

Immediately after pulling the piston the full permissible distance, the sheath should be continuously rotated 360° by rolling or twirling between the fingers while moving the sheath laterally and back and forth (in and out) between the fundus and internal os at least 3 or 4 times to obtain sample. It should then be gently withdrawn from the uterus.

Remove the tenaculum and clean the cervix with an antiseptic solution.

Remove the speculum from the vagina, take off gloves.

The removed tissue will be placed in formalin and sent to a laboratory, where it will be examined and tested.

Help the patient to get off the examination couch

Fill out pathology requisition with appropriate information

UTERINE CURETTAGE

Diagnostic uterine curettage (D&C, Dilatation and curettage)

Purpose: to obtain a sample for histological examination from the cervical canal and uterine cavity.

Equipment: gynecological chair, sterile worktable for instruments,

sterile disposable drape, sterile and non-sterile gloves, vaginal speculum, single toothed tenaculum, uterine sound, cervical dilation set (Hegar's) up N8, curettes №1, 2 and №4, tweezers or dressing forceps, sterile gauze swabs, lubricating gel, antiseptics, biopsy containers with formalin, Histopathology Request Form.

All instruments used must be sterile.

Preliminaries: the woman is placed on a gynecological chair covered with a sterile drape in a dorsal lithotomy position. The patient is to empty the bladder prior to operation.

Put on an apron, mask and cap, carry out hands hygiene, put on sterile gloves.

- Set up the devices kit on a sterile worktable.

Prepare containers with formalin, histopathology request form.

Before carrying out the operation, it is necessary to perform bimanual pelvic examination to determine the size and position of the uterus.

The operation is done under general or local anesthesia (paracervical block).

Steps of the procedure

- Treat labia major, pubis and inner thighs with antiseptic solution using the forceps (tweezers) and gauze swabs, perform a draping.
- Insert a posterior vaginal speculum and a vaginal wall retractor to visualize cervix. Pass the retractor to the assistant.

Cleanse the cervix with the antiseptic solution.

Grasp the anterior lip of the cervix with the tenaculum to steady the cervix (Figure 59).

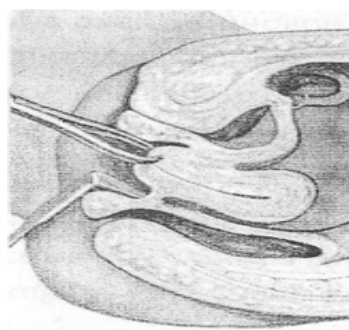


Figure 59. A tenaculum is placed on the anterior lip of the cervix.
The retractor is removed

Remove the vaginal wall retractor, pass the vaginal speculum to the assistant to hold it.

- Scrape the cervical mucous (Figure 60) with curette №1 (in nullipara) or 2 (in multipara), collect the material into the formalin sample bottle with label.

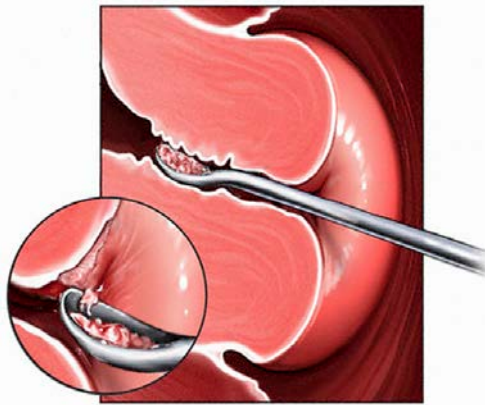


Figure 60. Curettage of the cervical canal

Introduce the uterine sound into the uterus (Figure 61) to determine the position and measure the length of the uterine cavity to avoid perforation, and document the depth (usually 6–9 cm).

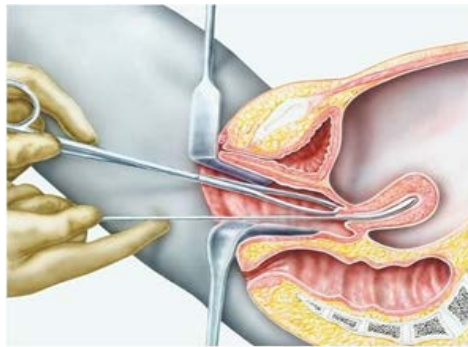


Figure 61. The uterine sound is inserted

- Dilate the cervical canal using Hegar's dilators one by one up to №8 (Figure 62).



Figure 62. Dilation of the cervical canal

Introduce the curette №4 through the cervical canal into the uterine cavity and perform curettage of the endometrium (Figure 63).

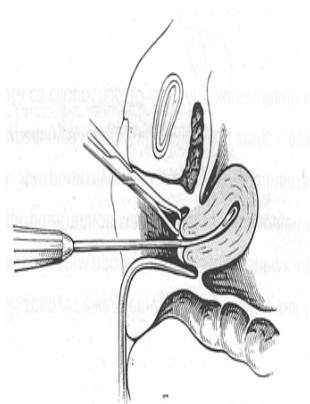


Figure 63. Curettage of the uterus

- The mucous from the corneal parts of the uterus is scraped by curette №2. Collect the material into the container with formalin.
- Remove the tenaculum.
- Clean the cervix with an antiseptic solution using gauze swabs and the dressing forceps, remove the speculum from the vagina.
- The curetted material is sent for histological examination, indicating the necessary passport data, relevant clinical data.

CURETTAGE OF THE UTERINE WALLS AFTER INCOMPLETE ABORTION

Purpose: stop bleeding.

Equipment: gynecological chair, sterile worktable for instruments, sterile disposable drape, sterile and non-sterile gloves, vaginal speculum, single toothed tenaculum, uterine sound, cervical dilation set (if necessary), curettes № 2, №4 and №6, tweezers or dressing forceps, sterile gauze swabs, lubricating gel, antiseptics, paracervical block (if needed).

All instruments used must be sterile.

Preliminaries: the woman is placed on a gynecological chair covered with a sterile drape in a dorsal lithotomy position. The patient is to empty the bladder prior to operation.

Put on an apron, mask and cap; carry out hands hygiene, put on sterile gloves.

- Set up the devices kit on a sterile worktable.

Prepare a container with formalin, histopathology request form.

Before carrying out the operation, it is necessary to perform bimanual pelvic examination to determine the size and position of the uterus.

The operation is done under general or local anesthesia

Steps of the procedure

Treat the external genitalia with an antiseptic solution using the dressing clamp (tweezers) and gauze swabs, perform a draping.

Insert vaginal speculum and visualize cervix.

Clean the cervix with an antiseptic solution.

Grasp the anterior lip of the cervix with the tenaculum to steady the cervix.

Remove the vaginal wall retractor; pass the vaginal speculum to the assistant to hold it.

Now withdraw the speculum approximately 2 cm and apply gentle traction to tenaculum to straighten any cervical curvature and to stabilize the cervix.

Introduce the uterine sound into uterine cavity gently till the bottom to determine the position of uterus and measure the depth of the uterine cavity to avoid perforation. Once determining the depth and the direction of the uterus, the uterine sound is removed.

- Curette No. 6 (or №4) is taken with three fingers, like a writing pen, and is then inserted into the cervical channel and gently passed into the cavity of the uterus to a depth that corresponds to that which was determined by uterine sound. The uterine cavity is curetted by uterine curette №6, either in clockwise or anticlockwise direction starting from the fundus down to internal os. Retained products of conception and decidua are removed. The curettage should be gentle but thorough.

Scrap the mucous from the cornual parts of the uterus with the curette №2 (or №4) and check all the uterine walls to remove any remnants. After complete emptying, the uterus contracts, the length of its cavity decreases, and when the curette glides along the walls, a crunch is heard; a small amount of foamy bloody fluid follows from the uterus.

- Remove the tenaculum.
- Cleanse the cervix with an antiseptic solution using a gauze swabs and tweezers. Remove the speculum from the vagina, take off gloves.

SURGICAL ABORTION

Purpose: termination of a uterine pregnancy up to 12 weeks.

Equipment: gynecological chair, sterile worktable for instruments, sterile disposable drape, sterile and non-sterile gloves, vaginal speculum, single toothed tenaculum or Allis forceps, uterine sound, a set of graduated

cervical dilators (Hegar's dilators) of increasing size from №1 up to №12, curettes №4 and №6, tweezers or dressing forceps (korncang), a ring forceps for removal of the products of conception (abortzange), sterile gauze swabs, lubricating gel, antiseptics.

All instruments used must be sterile!

Preliminaries: the woman is placed on a gynecological chair covered with a sterile drape in a dorsal lithotomy position. The patient is to empty the bladder prior to operation.

Put on an apron, mask and cap; carry out hands hygiene, put on sterile gloves.

- Set up the devices kit on a sterile worktable (Figure 64).

Before carrying out the operation, bimanual vaginal-abdominal examination is done to determine the size and position of the uterus, and to exclude contraindications for the operation.

The operation is done under general anesthesia.

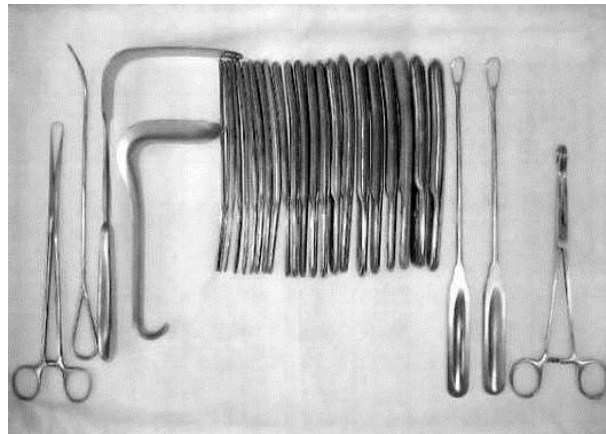


Figure 64. Instrument set for surgical abortion

Steps of the procedure

Treat the external genitalia with an antiseptic solution, perform a draping.

3. Sim's posterior vaginal speculum and vaginal retractor introduced into the vagina and an assistant is asked to hold the retractor.

Cleanse the vagina and cervix with the antiseptic solution.

4. The anterior lip of the cervix is grasped by the tenaculum or Allis forceps to steady the cervix (Figure 60). Remove the wall retractor; pass the vaginal speculum to the assistant sitting on the left, to hold it.

To straighten the cervical canal pull it downwards (at the position of the uterus in anteflexio) or anteriorly (with the position of the uterus in retroflexio).

Introduce the uterine sound into uterine cavity till the bottom gently to measure the depth of the uterine cavity and to determine the direction for

introducing dilators and position of uterus (Figure 61). The handle of the *sound* should lie inside the palm freely between the thumb and the second and the third fingers. Once determining the depth and the direction of the uterus, the uterine sound is removed.

Dilate the cervical canal with Hegar's dilators of increasing size up to size №12. The cervix should be dilated gently and gradually. To do this, the doctor, holding the tenaculum with one hand, takes the Hegar dilator with three fingers of the other hand and inserts it into the cervical canal so that the tip of the dilator should be directed anteriorly or posteriorly according to the position of the uterus.

The Hegar's dilators are introduced successively one after the other starting with a thin, low Hegar number rod that can pass through the canal (№1-4) and progressing gradually to larger numbers. The tip of the instrument should stop the movement immediately after passing beyond the internal os evidenced by the fact that it is "grasped" by it. Overcoming the resistance of the os carefully, keep the dilator in this position for 1-2 seconds (Figure 62), then slowly withdraw it and immediately introduce the following one to prevent the os contraction. If there is a difficulty with the introducing of the following number, go back to the previous one and hold the smaller dilator in the cervix for 3-5 seconds.

When the dilator is introduced, the cervix is made steady by traction of the tenaculum.

After the desired dilatation, remove the products of conception using the curettes and an abortzange. A curette №6 is carefully inserted into the cervical channel and gently passed into the cavity of the uterus to a depth that corresponds to that which was determined by uterine sound. The uterine cavity is curetted either in clockwise or anticlockwise direction starting from the fundus down to internal os. The curettage should be gentle but thorough. Use the ring forceps to remove the products of conception after its separation (Figure 65).

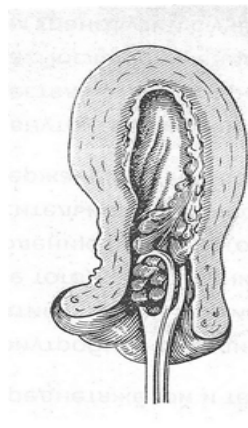


Figure 65. Removal of the products of conception with the ring forceps

When the main parts of the conceptus are removed and uterine size decreased, put off the curette №6 and use curette №4 to empty the cornua of the uterus and to remove any remnants of conception and decidual membrane by sequential curettage of all walls of the uterus. After complete emptying, the uterus contracts and bleeding stops. One should finish the procedure if the curette slides along the walls with a crunch sound, and a little frothy bloody liquid is released from the uterus.

Remove the tenaculum, clean the cervix with an antiseptic solution using a gauze swabs and the dressing clamp, and remove the speculum.

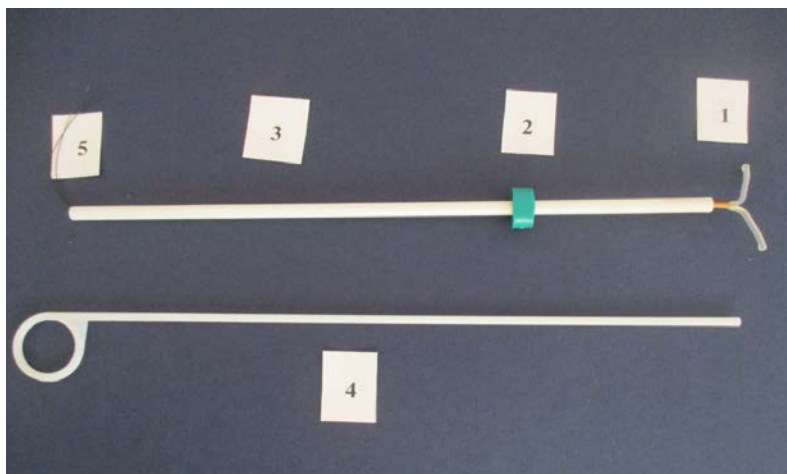
After being satisfied that the uterus is remaining firm, and there is minimal vaginal bleeding, the patient is brought down from the table after placing a sterile vulvae pad. Each Rh-negative woman should receive Rh immune globulin to prevent Rh immunization.

PLACEMENT OF INTRAUTERINE CONTRACEPTIVE DEVICE (IUD)

(Withdrawal technique of insertion of IUD)

Purpose: to prevent a pregnancy.

Equipment: a gynecological chair; sterile worktable for instruments, sterile towel, vaginal speculum; single toothed tenaculum, uterine sound; an intrauterine device (IUD), filled in a tube-conductor (Figure 66); dressing clamp, sterile and nonsterile gloves, drape, long suture scissors, basin with cotton swabs moistened with antiseptic solution.



2-flange 4-plunger 3-sheath 1-IUD, horizontal arms 5 - threads

Figure 66. Intrauterine contraceptive device

Preliminaries: the woman is on a gynecological chair covered with a sterile drape in a position on the back, the knees flexed and thighs abducted, putting her feet in stirrups. The patient is to empty the bladder prior to procedure.

Put on an apron, mask, cap, carry out hands hygiene, put on sterile gloves.

Before performing the procedure a vaginal examination is mandatory to determine the size and position of the uterus.

Steps of the procedure:

Clean the external genitalia, inner thighs and perineum with antiseptic solution using a dressing clamp and gauze swabs.

Insert a warm vaginal speculum and retractor, visualize the cervix. Pass the retractor to the assistant.

Clean the cervix and the vagina with antiseptic solution using a gauze swabs and clamp.

If needed apply a single toothed tenaculum to the cervix and use gentle traction to align the cervical canal with the uterine cavity. Apply topical anesthetic to cervix (if tenaculum is going to be used).

Remove the vaginal wall retractor, pass the vaginal speculum to the assistant to hold it.

Introduce sterile uterine sound into the uterus to determine the position and measure the depth of the uterus. (Uterus should be between 6 and 9 cm to continue with the placement of IUD). The handle of the sound should lie inside the palm freely between the thumb and the second and the third fingers. Once determining the depth and the direction of the uterus, the uterine sound is removed.

Prepare the IUD for the insertion (“No-touch” insertion technique)

Prepare the IUD while the one is in the sterile package. First, the assistant opens the package at the bottom end and holds it so that the open part of the insertion tube is available to the operator. Grasp at the open end of the insertion tube, holding it with one hand. Use other hand to pull the threads at the base of the tube until the horizontal arms of the IUD is drawn into the insertion tube (it means IUD is located inside the tube).

Introduce the plunger into the insertion tube alongside the threads, until it touches the bottom of the IUD .

Adjust the blue flange along the tube in accordance to the depth of the uterus as determined by sounding (Figure 67).

The loaded inserter is now taken out of the package without touching the distal end.

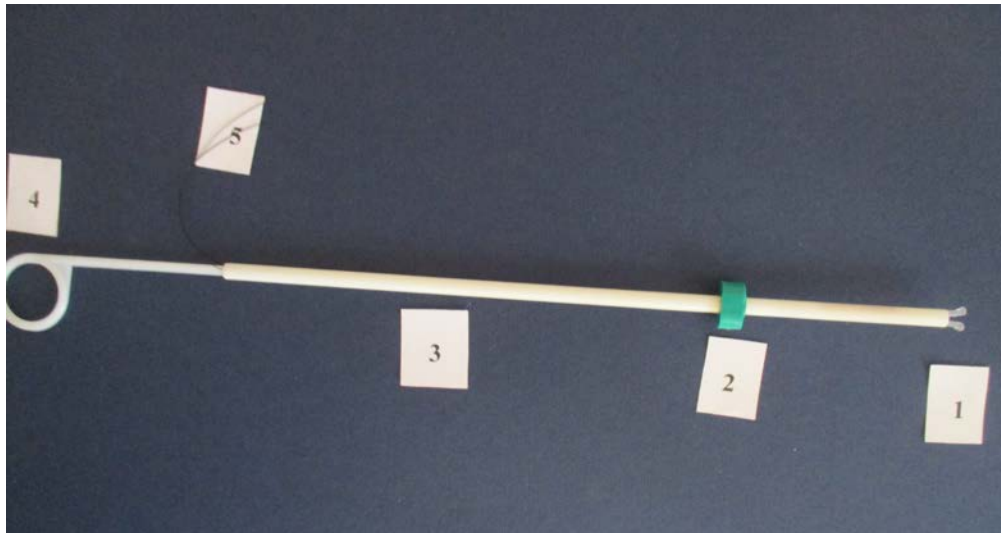


Figure 67. The loaded inserter

Now pass the loaded insertion tube through the cervical canal into the uterus up to the blue flange (Figure 68).



Figure 68. The loaded insertion tube passed into the uterus

NB! Not to touch the vaginal wall and the speculum while introducing the loaded IUD inserter through the cervical canal.

Slowly and gently the insertion tube is withdrawn no more than 1 cm keeping the plunger in position, the device is released in the uterine cavity.

Holding the insertion tube steady, withdraw the plunger.

Gently and slowly withdraw the insertion tube from the cervical canal. Only the threads should be visible protruding from the cervix.

Cut the threads with a long suture scissors so that 3 to 4 cm protrude into the vagina.

Remove the tenaculum, clean the cervix with an antiseptic solution using a gauze swabs and the dressing clamp.

Take off the posterior vaginal speculum, put off the gloves

Литература

1. Акушерство: учебное пособие / под ред. С.Н.Занько, Л. Е. Радецкой. – Минск : Выш. школа, 2017. – 383 с.
2. Акушерство и гинекология. Практические навыки и умения с фантомным курсом : учеб. пособие / под ред. А.И.Ищенко. - М. : ГЭОТАР-Медиа, 2016. - 392 с.
3. Гинекология: учебник / под ред. С.Н.Занько. – Минск : «Вышэйшая школа», 2010. – 640 с.
4. Давыдов, С. Н. Атлас гинекологических операций / С. Н. Давыдов, Б. М. Хромов, В. З. Шейко - Ленинград : «Медицина», 1982.- С. 8-14.
5. Инструменты и правила взятия материала для цитологического исследования при профилактических осмотрах женского населения. Инструкция по применению / И. Л. Косенко, Г. В. Костевич, О. А. Ерохина. - Минск, 2009 – 12 с.
6. «Оказание специализированной медицинской помощи при оперативных влагалищных родах при наличии живого плода с помощью акушерских щипцов или с применением вакуум-экстрактора или родоразрешение с использованием другого акушерского пособия. Клинические протоколы – Москва, 2017. – 34 с.
7. Персианинов, А. С. Оперативная гинекология / А. С. Персианинов. – Москва : «Медицина», 1975 .- С. 178-182.
8. Томчина, А. В. Современные подходы к цитологическому исследованию материала шейки матки в акушерско-гинекологической и онкологической практике: методика, интерпретация результатов, тактика: методич. рекомендации / А. В. Томчина [и др.]. - Витебск: ВГМУ, 2013.- 41 с.
9. American Cancer Society Guideline for the Early Detection of Cervical Neoplasia and Cancer / D. Saslow [et al.] - CA Cancer J Clin 2002;52:342-362. - <https://doi.org/10.3322/canjclin.52.6.342>
This article is available online at <http://CAonline.AmCancerSoc.org>
10. Dutta D. C. Textbook of gynecology including contraception: textbook / Calcutta : New Central Book Agency (P) Ltd. – 2016. – 574 p.
11. Dutta D. C. Textbook of obstetrics: Including perinatology and contraception: textbook /Calcutta:New Central Book Agency (P) Ltd. – 2018. – 659 p.
12. Evidence-based labor and delivery management / V. Berghella [et al.] // Am J Obstet Gynecol. – 2008. – Vol. 199(5). – P. 445-454.
13. Heath C. B., Sulik S. M. (Eds.). Primary Care Procedures in Women’s Health / Springer-Verlag New York. – 2010- 424p/ DOI:10.1007/978-0-387-76604-1
14. Managing complications in pregnancy and childbirth: a guide for midwives and doctors – 2nd ed. ISBN 978-92-4-156549-3 / World Health Organization 2017, Geneva, reprinted 2007.

<http://apps.who.int/iris/bitstream/10665/255760/1/9789241565493-eng.pdf>

15. Pipelle® Endometrial Suction Curette Directions for Use (English) - https://www.dufortlavigne.com/system/files/fiches/techniques_en/SEP1103000.

16. Standardized procedure endometrial biopsy (Adults, Peds) <https://health.ucsd.edu/medinfo/medical-staff/application/Documents/SP26%20Endometrial%20Biopsy>.

17. Will AJ, Sanchack KE. Endometrial Biopsy. [Updated 2019 May 5]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls <https://www.ncbi.nlm.nih.gov/books/NBK541135/?report=reader>

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OBSTETRICS AND GYNECOLOGY: PRACTICAL SKILLS

АКУШЕРСТВО И ГИНЕКОЛОГИЯ: ПРАКТИЧЕСКИЕ НАВЫКИ

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